DVD-Video Player DVD634

DVD634 /001 /021 /051

Service
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Service Manual

CLASS 1
LASER PRODUCT

DVD VIDEO™

COMPACT disc DIGITAL VIDEO

COMPACT disc DIGITAL AUDIO

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PHILIPS

1. Technical Specifications

PLAYBACK SYSTEM
DVD Video
Video CD & SVCD
CD (CD-Recordable and CD-Rewritable)
MP3 CD
DVD-R & D VD+RW

VIDEO PERFORMANCE	
CVBS	1 Vpp into 75 ohm
RGB (SCART)	0.7 Vpp into 75 ohm
Black Level Shift	On/Off
Video Shift	Left/Right

AUDIO FORMAT		
Digital	MPEG/AC-3/DTS	Compressed Digital
	PCM	16, 20, 24 bits fs, 44.1, 48, 96 kHz
MPEG MP3	MPEG Audio L3	
Analogue Stereo Sound		
Full decoding of Dolby Digital multi-channel surround sound		

A UDIO PERFORMANCE		
DA Converter	24 bits	
Signal-Noise (1kHz)	90 dB	
Dynamic Range (1kHz)	80 dB	
DVD	fs 96 kHz	4 Hz - 44 kHz
DVD/SVCD	fs 48 kHz	4 Hz - 22 kHz
SVCD/VCD/CD	fs 44.1 kHz	4 Hz - 20 kHz
MPEG MP3	MPEG Audio L3	

TV STANDARD	(P AL/50Hz)	(NTSC/60Hz)
Number of lines	625	525
Playback	Multistandard	(PAL/NTSC)

CONNECTIONS	
SCART	Euroconnector
Video Output	Cinch (yellow)
Audio L+R output	Cinch (white/red)
Digital Output	1 coaxial IEC958 for CDD A / LPCM/ MPEG1 IEC1937 for MPEG2, Dolby Digital and DTS

CABINET	
Dimensions (w x h x d)	435 x 293 x 75 mm
Weight	Approximately 2.7 Kg

* typical playing time for movie with 2 spoken languages and 3 subtitle languages

Specifications subject to change without prior notice

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2. Safety Instructions, Warnings, Notes, and Service Hints

2.1 Safety Instructions

2.1.1 General Safety

Safety regulations require that during a repair:
- Connect the unit to the mains via an isolation transformer.
- Replace safety components, indicated by the symbol ⚠, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.

Safety regulations require that after a repair, you must return the unit in its original condition. Pay, in particular, attention to the following points:
- Route the wires/cables correctly, and fix them with the mounted cable clamps.
- Check the insulation of the mains lead for external damage.
- Check the electrical DC resistance between the mains plug and the secondary side:
  1. Unplug the mains cord, and connect a wire between the two pins of the mains plug.
  2. Set the mains switch to the 'on' position (keep the mains cord unplugged!).
  3. Measure the resistance value between the mains plug and the front panel, controls, and chassis bottom.
  4. Repair or correct unit when the resistance measurement is less than 1 MΩ.
  5. Verify this, before you return the unit to the customer/ user (ref. UL-standard no. 1492).
  6. Switch the unit 'off', and remove the wire between the two pins of the mains plug.

2.1.2 Laser Safety

This unit employs a laser. Only qualified service personnel may remove the cover, or attempt to service this device (due to possible eye injury).

Laser Device Unit

Type	:	Semiconductor laser GaAlAs
Wavelength	:	650 nm (DVD)
	:	780 nm (VCD/CD)
Output Power	:	20 mW (DVD+RW writing)
	:	0.8 mW (DVD reading)
	:	0.3 mW (VCD/CD reading)
Beam divergence	:	60 degree

Figure 2-1

Note: Use of controls or adjustments or performance of procedure other than those specified herein, may result in hazardous radiation exposure. Avoid direct exposure to beam.

2.2 Warnings

2.2.1 General

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD, ⚠). Careless handling during repair can reduce life drastically. Make sure that, during repair, you are at the same potential as the mass of the set by a wristband with resistance. Keep components and tools at this same potential. Available ESD protection equipment:
  – Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable) 4822 310 10671.
  – Wristband tester 4822 344 13999.
- Be careful during measurements in the live voltage section. The primary side of the power supply (pos. 1005), including the heatsink, carries live mains voltage when you connect the player to the mains (even when the player is 'off'!). It is possible to touch copper tracks and/or components in this unshielded primary area, when you service the player. Service personnel must take precautions to prevent touching this area or components in this area. A 'lightning stroke' and a stripe-marked printing on the printed wiring board, indicate the primary side of the power supply.
- Never replace modules, or components, while the unit is 'on'.

2.2.2 Laser

- The use of optical instruments with this product, will increase eye hazard.
- Only qualified service personnel may remove the cover or attempt to service this device, due to possible eye injury.
- Repair handling should take place as much as possible with a disc loaded inside the player.
- Text below is placed inside the unit, on the laser cover shield:

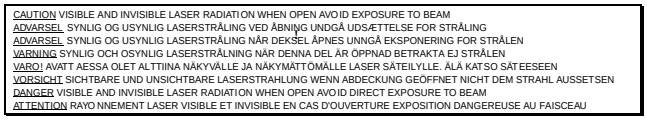

CAUTION VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM
ADVARSEL SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING UNDGÅ UDSÆTTELSE FOR STRÅLING
ADVARSEL SYNLIG OG USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN
VARNING SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD BETRAKTA EJ STRÅLEN
VAROI AVATT AESSA OLET ALTTIINA NÄKYVÄLLE JA NÄKYMÄTTÖMÄLLE LASER SÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN
VORSICHT SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSETSEN
DANGER VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID DIRECT EXPOSURE TO BEAM
ATTENTION RAYO NNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE EXPOSITION DANGEREUSE AU FAISCEAU

Figure 2-2

2.2.3 Notes

Dolby

Manufactered under licence from Dolby Laboratories. "Dolby", "Pro Logic" and the double-D symbol are trademarks of Dolby Laboratories. Confidential Unpublished Works. ©1992-1997 Dolby Laboratories, Inc. All rights reserved.

Figure 2-3

Trusurround

TRUSURROUND, **SRS** and symbol (fig 2-4) are trademarks of SRS Labs, Inc. TRUSURROUND technology is manufactured under licence frm SRS labs, Inc.

Figure 2-4

Introduction 1

Thank you for purchasing this Philips DVD player. This Owner's Manual explains the basic operation of this DVD player.

Environmental Information

All unnecessary packaging has been omitted. We have tried to make the packaging easy to separate into three materials: cardboard (box), polystyrene foam (buffer) and polyethylene (bags, protective foam sheet).

Your DVD player consists of materials which can be recycled and reused if disassembled by a specialised company. Please observe the local regulations regarding the disposal of packaging materials, exhausted batteries and old equipment.

Supplied accessories

- Remote control
- Batteries (two AA size) for remote control
- Audio cable
- SCART cable *(not available for all versions)*
- CVBS cable
- Owner's Manual

Safety Information

- Before operating the DVD player, check that the operating voltage indicated on the typeplate (or the voltage indication beside the voltage selector) is identical with the voltage of your local power supply. If not, please consult your dealer.
- Place the DVD player on a flat, hard and stable surface.
- There must be sufficient room in front of the player for the drawer to be opened.
- In cabinet, allow about 2.5cm (1 inch) of free space all around the player for adequate ventilation.
- Do not expose your player to extreme of temperature or humidity.
- If the DVD player is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense on the lens of the disc unit inside the DVD player. Should this occur, the DVD player would not operate normally. Leave the power on for about one hour with no disc in the DVD player until normal playback is possible.
- The mechanical parts of the set contain self-lubricating bearings and must not be oiled or lubricated.
- **When the DVD player is switched to Standby mode, it is still consuming some power. To disconnect the system from the power supply completely, remove the AC power plug from the wall socket.**

Symbols Used in this Manual

The below symbols appear in some headings and notes with the following meanings:

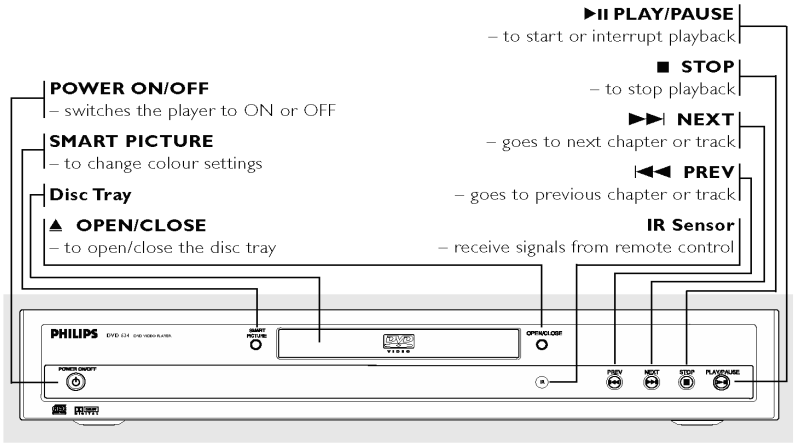
DVD	– Description refers to playback of DVD-video discs
VCD	– Description refers to playback of Video CDs
CD	– Description refers to playback of Audio CDs
SVCD	– Description refers to playback of Super Video CDs

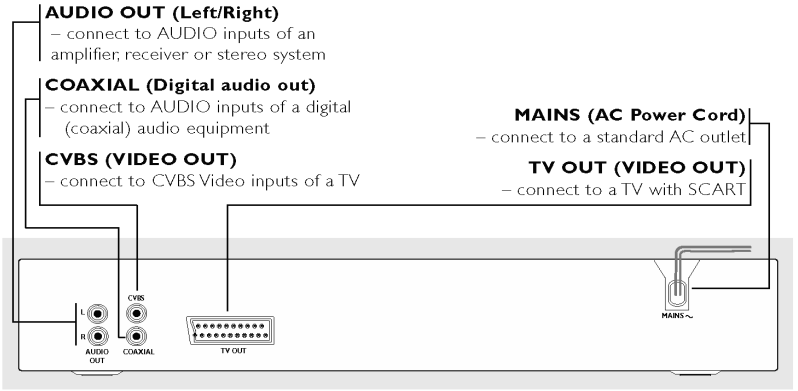
Helpful Hints!

- ***Some DVD video discs require specific functions or allow only limited functions during playback.***
- ***"✕" may appears on the TV screen which means that the function is not available on that specific DVD video disc.***

Functional Overview 2

Front and Rear Panels

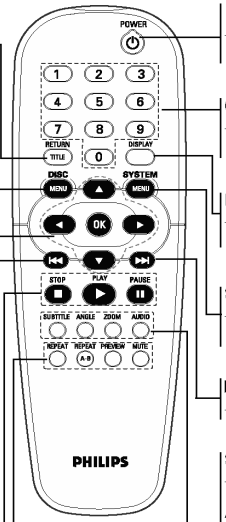



AUDIO OUT (Left/Right)
– connect to AUDIO inputs of an amplifier, receiver or stereo system
COAXIAL (Digital audio out)
– connect to AUDIO inputs of a digital (coaxial) audio equipment
CVBS (VIDEO OUT)
– connect to CVBS Video inputs of a TV
MAINS (AC Power Cord)
– connect to a standard AC outlet
TV OUT (VIDEO OUT)
– connect to a TV with SCART
L
R
AUDIO OUT
CVBS
COAXIAL
TV OUT
MAINS

Caution: Do not touch the inner pins of the jacks on the rear panel. Electrostatic discharge may cause permanent damage to the unit.

Functional Overview 3

Remote Control



RETURN / TITLE
– go back to previous menu / to display title menu during playback

DISC MENU
– access menu of a DVD disc / to switch PBC on/off for VCD disc

◄ ► ▲ ▼
– (left/right/up/down) select an item in the menu
search FF and FR with different speeds during playback using ◄ ►
search SF and SR with different speeds during playback using ▲▼

OK
– acknowledge menu selection

|◄◄
– go to a previous chapter or track

STOP (■)
– stop playback

PLAY (►)
– start playback

PAUSE (II)
– pause playback temporarily / frame-by-frame playback

REPEAT
– repeat chapter, track, title, disc

REPEAT (A-B)
– repeat a specific segment

PREVIEW
– display the content of a track or whole disc

MUTE
– disable or enable sound output

POWER ⏻
– switch DVD ON or go to standby-on mode

0-9 numerical key pad
– select numbered items in a menu

DISPLAY
– to display track, chapter, status during playback (DVD, SVCD)

SYSTEM MENU
– access or remove player's system menu

►►|
– go to next chapter or track

SUBTITLE
– subtitle language selector

ANGLE
– select DVD camera angle

ZOOM
– enlarge video image

AUDIO
– audio language selector

Note:
– Press numerical key pad "1" for 2 seconds to OPEN/CLOSE disc tray.

Preparation 4

Basic Connections

- Please refer to the instruction manuals of your TV, VCR, Stereo System or other devices as necessary to make the best connections.
- Make one of the following connections, depending on the capabilities of your existing equipment.

The following guidelines are options for the best picture and sound quality available on your DVD player.

Picture

1 Use the CVBS Video Ouput for good picture quality.
2 Use SCART Output for best picture quality.

Sound

1 Digital audio connections provide the clearest sound. Connect one of the DVD player's DIGITAL AUDIO OUT (COAXIAL) to your amplifier or receiver.
2 If digital connections are not possible, connect the DVD player's Left and Right (white and red) AUDIO OUT to your amplifier, receiver, stereo or TV.

Warning!
– Never make or change connections with the power switched on.
– Connect the DVD player directly to your TV, instead of eg. a VCR, to avoid distortion because DVD video discs are copy protected.
– Do not connect the DVD player AUDIO OUT to PHONO IN of your amplifier or receiver.

Connecting to a TV

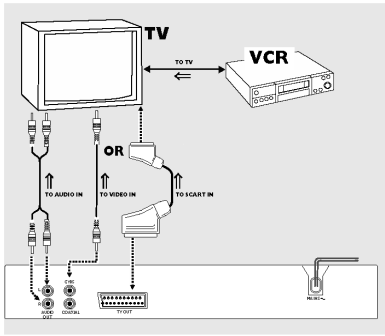
1 Connect the SCART (TV OUT) on the DVD player to the corresponding connector on the TV IN.

Note:
– Ensure that the "TV" indication on SCART cable is connected to the TV set and "DVD" indication on SCART cable is connected to the DVD player.

If your TV is not equipped with a SCART input, you can select the following connection:

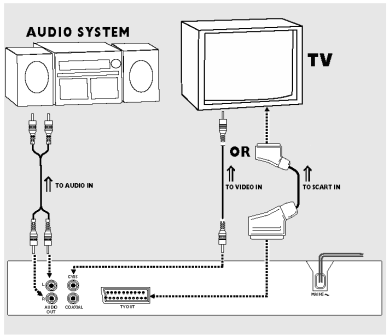
If your TV has a CVBS Video input connector,

1 Connect the CVBS VIDEO OUT on the DVD player to the CVBS VIDEO IN.
2 Connect the Left and Right AUDIO OUT on the DVD player to the Left and Right AUDIO IN on the TV.



Connecting to an Audio System

1 You can also listen to the sound of audio CDs and DVD video discs by connecting to an optional stereo system.
2 Connect the Left and Right AUDIO OUT on the DVD player to the Left and Right AUDIO IN on the stereo system.



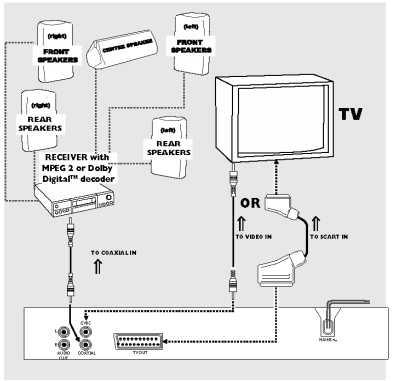
Preparation 5

Connecting to Optional Equipment

- A digital component with a built-in MPEG 2 or Dolby Digital™ decoder allows you to enjoy the surround sound while producing the effect of being in a movie theater or a concert hall.
- The player outputs the surround sound signals from the DIGITAL OUT COAXIAL connectors.

If your receiver has a MPEG 2 or Dolby Digital™ decoder,

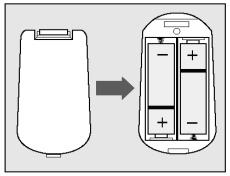
1 Connect the COAXIAL DIGITAL AUDIO OUT of the DVD player to the COAXIAL DIGITAL AUDIO IN on your receiver.



Notes:
– If the audio format of the digital output does not match the capabilities of your receiver, the receiver will produce a strong, distorted sound or no sound at all.
– To see the selected audio format of the current DVD in the Setup Menu, refer to "Setup Menu".
– MP3 Audio is not available on the Digital Output.

Inserting batteries into the Remote Control

1 Open the battery cover.
2 Insert batteries (AA size) with the correct polarity as indicated by the + and − symbols inside the battery compartment.
3 Close the cover.



CAUTION!
– Remove batteries if they are exhausted or not to be used for a long time.
– Do not use old and new or different types of batteries in combination.
– Batteries contain chemical substances, so they should be disposed off properly and kept away from children.

Using the Remote Control

- Direct the remote control at the remote sensor of the DVD player.
- Do not drop the remote control.
- Do not leave the remote control near extremely hot or humid places.
- Do not spill water or put anything wet on the remote control.

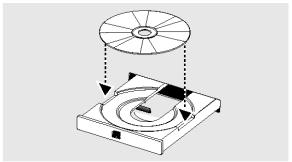
Switching On

1 Connect the AC power cord to the power outlet.
2 Switch on the TV and DVD player.
3 Set the TV to the correct Video IN channel. (eg. EXT1, EXT2, AV1, AV2, AUDIO/VIDEO, etc. (Refer to your TV owner's manual for detail)
➜ The player display lights up and the default screen appears on the TV.
4 If you are using an external equipment (eg. audio system or receiver), turn them on and select the appropriate input source that was used to connect to the DVD player output. Refer to the equipment owner's manual for details.

Operation 6

Basic Playback

1 Press POWER ON/OFF on the front panel.
2 Press OPEN/CLOSE ▲ on the front panel to open disc loading tray.
3 Place the chosen disc in the tray, with the label facing up.
4 Press OPEN/CLOSE ▲ again to close the tray.
➜ Playback starts automatically.



Notes:
– DVDs may have a region code. Your player will not play discs that have a region code different from the region code of your player.
– If 'Disc Lock' is set to ON and the disc inserted is not authorised, the 4-digit code must be entered and/or the disc must be authorised (see 'Disc Lock").

General Features

Note:
– Unless stated, all operations described are based on remote control use. Some operations can be carried out using the menu bar on the TV screen.

Video Control during playback

STOP DVD VCD CD SVCD

1 You can resume playback from the point where the playback was last stopped by pressing the STOP key once.
2 Playback will start from the beginning if you press STOP key twice to stop playback.

PAUSE/STEP

DVD VCD CD SVCD

1 Press PAUSE once to get a still picture during playback.
➜ Playback will pause.
2 To step forward to the next picture frame, press PAUSE again.
3 To resume normal playback, press PLAY.

SEARCH (Fast Forward and Fast Backward)

DVD VCD CD SVCD

1 Press ◄ or ► during playback to go to the fast forward / backward searching.
2 Press ◄ or ► again to increase the speed for searching.
3 To resume normal playback, press PLAY.

SLOW MOTION (Slow Forward and Slow Backward)

DVD

1 Press ▲ or ▼ during playback to get slow motion effect.
2 Press ▲ or ▼ again to get different playback forward/backward speed.
3 To resume normal playback, press PLAY.

VCD CD SVCD

1 Press ▲ during playback to get slow motion effect.
2 Press ▲ again to get different playback forward speed.
3 To resume normal playback, press PLAY.

Note:
– SLOW BACKWARD feature is not available for SVCD/VCD/CD discs.

Smart Picture

You can select one of the predefined sets of colour settings and one set (Personal) which you can define yourself (see "Smart Picture" in Setup Menu).

1 Press SMART PICTURE on the front panel to change the settings (Bright, Standard, Soft and Personal).

Audio Control during playback

MUTE

DVD VCD CD SVCD

1 Press MUTE to disable the sound output.
2 Press MUTE again to enable the sound output again.

SURROUND SOUND

DVD VCD CD SVCD

The DVD player can reproduce virtual surround sound effect.

1 Press DISPLAY on the remote control.
2 Use ◄► to highlight 3D option.
3 Press ▲▼ to switch between ON or OFF mode.

Audio Channel Selection

VCD CD SVCD

1 SVCD discs has two stereo audio channels which are used for playing karaoke or for selecting the audio language. (eg. choose one channel for music background of the song while playing a karaoke disc).
2 Press AUDIO on the remote control to select the preferred audio channel.
3 VCD discs has only one channel. Mono left audio or mono right audio channel by pressing the AUDIO on the remote control.

Repeat

DVD

Repeat chapter/title/disc

- To repeat the current chapter, press REPEAT.
- To repeat the current title, press REPEAT a second time.
- To exit Repeat mode, press REPEAT a third time.

VCD CD

Repeat track/disc

- To repeat the current track, press REPEAT.
- To repeat the entire disc, press REPEAT a second time.
- To exit Repeat mode, press REPEAT a third time.

Repeat A-B DVD VCD CD

– DVD-Video Discs: repeat a sequence in a title

– Video and Audio CDs: repeat a sequence in a track

1 Press REPEAT A-B at your chosen starting point.
2 Press REPEAT A-B again at your chosen end point.
➜ The playback of the repeat sequence begins.
3 To exit the sequence, press REPEAT A-B.

5 Disc Resume

DVD VCD CD SVCD

The RESUME feature applies not only to the disc in the player, but also to the last four discs you have played.

1 Simply reload the disc on the disc tray.
2 Press PLAY while disc is loading.
➜ Playback resume from the point at which you've last stopped.

OSD (On-Screen Display)

DVD VCD CD SVCD

A number of operations can be done with the menu bar on the screen.

1 Press DISPLAY on the remote control to access to the menu bar.

Title Selection

1 Press ◄► to highlight TITLE number option.
2 Press ▲ ▼ to change the Title number.
➜ Playback will start from the selected Title.

Chapter Selection

1 Press ◄► to highlight CHAPTER number option.
2 Press ▲ ▼ to change the Chapter number.
➜ Playback will start from the selected Chapter.

Time Search

The Time Search function allows you to start playing at any chosen time on the disc.

1 Press ◄► to highlight Time Display.
DVD discs:
➜ CC: Total time played in Current Chapter
➜ CR: Remainder time in Current chapter
➜ TC: Total time played in Current Title
➜ TR: Remainder time in Current Title

SVCD or VCD discs:
➜ DC: Total time played in Current Disc
➜ DR: Remainder time in Current disc
➜ TC: Total time played in Current Track
➜ TR: Remainder time in Current track
2 Press ◄► to highlight item TIME and playback starts from the selected time position on the disc.
➜ Enter hours, minutes and seconds from left to right in the time edit box using remote control numerical key pad.
➜ Press OK to confirm the selected time.

Zoom DVD VCD SVCD

The Zoom function allows you to enlarge the video image.

1 Press ZOOM on the remote control to activate the zoom function.
2 Use the ◄►▲▼ keys to pan across the screen.
➜ Playback will continue.
3 To exit Zoom mode, select zoom to "ZOOM OFF" by pressing ZOOM key on the remote control.

Note:
– This function is subject to availability of the disc.

Special DVD Features

Playing a title/chapter

- DVD video discs may have one or more TITLES, and each TITLE may have one or more CHAPTERS.

1 Insert a disc and close the tray, playback starts automatically.
➜ The display on the screen shows the type of disc loaded, disc's information and playing time.
2 When the Disc Menu appear on the TV screen, use ▼▲◄► keys or numerical keys on the remote control to select an option and continue playback.
3 If the titles are numbered , press the numerical keys or use the ▼▲ keys to select desired title in the menubar.
4 Press OK to confirm the selection.

Camera Angle DVD

Some discs contain scenes which have been shot simultaneously from various angles.
This DVD player allows you to select the desired camera angle.

- Press ANGLE on the remote control repeatedly to display the multiple angles (4/4, 3/4, 2/4, 1/4).

Note:
– This function is subject to availability of the DVD disc.

Changing the audio language DVD

- Press AUDIO on the remote control repeatedly to select the different languages.

Note:
– This feature is subject to availability of the disc.

Subtitles DVD SVCD

1 Press the SUBTITLE key on the remote control repeatedly to select the different subtitles.
2 Press SUBTITLE for about 2 seconds to switch subtitle off.

Note:
– This feature is subject to availability of the disc.

Special VCD & SVCD Features

Playback Control (PBC)

1 Load a Video CD with PBC and press PLAY.
2 Press DISC MENU on the remote control to select PBC ON or OFF.
3 Use |◄◄ or ►►| to select your preferred page.
4 If the PBC menu consists of a list of numbered index menu, enter your choice with the numerical key pad (0-9) or ◄►▲▼ keys for direct selection.
4 Press OK to confirm playback.

Notes:
– *You can also press RETURN to enter the index menu during playback.*
– *This feature is subject to availability of the disc.*

If you want to skip the index menu and playback from the beginning,
- Press DISC MENU on the remote control to switch off the function.
- For karaoke discs, even if the PBC function is off, you can still use the |◄◄ or ►►| to select your preferred track.

Preview VCD SVCD

- At stop mode, press PREVIEW on the remote control.
  ➜ The preview menu will be displayed.

1. INTRO
DVD player will playback every track for few seconds with full screen to obtain a summary of the disc content.
1 Press numerical key pad '1'.
2 Press OK to confirm.
  ➜ The full screen of each track will appear in sequence.
3 Press STOP to quit previewing.

2. DISC
Reduce the picture of 9 tracks enough to display in a full screen.

1 Press numerical key pad '2'.
2 Press OK to confirm.
  ➜ The preview of 9 track with full screen will appear.
3 To select other tracks beyond this page, press |◄◄ or ►►|.
4 Press the numerical key pad to select preferred track.
5 Press OK to confirm.

3. TRACK
Reduce the picture of a single track enough to display in a full screen.

1 Press numerical key pad '3'.
2 Press OK to confirm.
  ➜ The preview of one track with 9 parts in a full screen will appear.
3 To select other tracks, press |◄◄ or ►►|.
4 Press the numerical key pad to choose the starting point.
5 Press OK to playback the starting point.

4. EXIT
1 Press numerical key pad '4'.
2 Press OK to exit.

MP3 Disc Features

Support following MP3-CD formats (ISO9660 format):
- Max. 30 characters
- Max. nested directory is 8 levels
- The max. ALB number is 32
- Supported VBR bit-rate
- Supported sampling frequencies for MP3 disc are: 32 kHz, 44.1 kHz, 48 kHz
- Supported Bit-rates of MP3 disc are: 32, 64, 96, 128, 192, 256 (kbps)

Following formats can't be supported
- The files like *.WMA, *.AAC, *.DLF, *.M3U, *.PLS
- Chinese filenames
- The non-session closed discs
- The discs recorded under UDF format

Downloading MP3 files from the Internet or copying songs from your own legal discs is a delicate process.

Sound Quality	Bit Rate	Approximate Reduction Ratio	Approximate total MP3-CD time	Comment
AM radio	32 kbps	40 : 1	40 hrs	Sound quality significantly affected – not recommended.
FM radio	64 kbps	20 : 1	20 hrs	
Near-CD	96 kbps	15 : 1	15 hrs	Balanced sound quality – compression rate
CD-like	128 kbps	10 : 1	10 hrs	
CD*	256 kbps	5 : 1	5 hrs	Compression rate low – suggest to play CDs instead
CD*	320 kbps	3 : 1	3 hrs	

You may experience an occasional "skip" while listening to your MP3 files. This is normal.

Additional note for MP3 disc Playback:
– In compliance with the SDMI, digital-out is muted while playing MP3 discs.
– Due to the recording nature of Digital Audio MP3 (DAM),only Digital Audio music will play.
– The disc reading time may exceed 10 seconds due to the large number of songs compiled onto one disc.
– For multi-session discs, only the first session will be available.

Album/Title

This feature allows you to view and select the next or previous MP3 disc Album/Title.
1 Press |◄◄ / ►►| to scroll through the previous or next Track.
2 You can also select the desired album/track number directly using the numeric keys on the remote control.

Note:
– ***In STOP mode:*** *numbers are used for ALBUM selection.*
– ***In PLAY mode:*** *numbers are used for TRACK selection.*

- Only the following functions are possible for MP3 discs:
  – STOP / PLAY / PAUSE
  – SKIP NEXT / PREVIOUS
  – REPEAT (TRACK / ALBUM / DISC)

MP3 Discs - Album/Track/Disc

- To repeat a track, press REPEAT.
  ➜ **REP ONE** appears on the player display.
- To repeat the entire disc, press REPEAT a second time.
  ➜ **REP ALL** appears on the player display.
- To exit REPEAT mode, press REPEAT a third time.
  ➜ **REPEAT OFF** appears on the player display.

Basic Operations

1 At Stop mode, press SYSTEM MENU to enter the Setup menu.
➜ Setup menu appears on the TV screen.
2 Press OK to enter to next submenu or confirm your selection.
3 Use ◄► keys to enter the submenu or return to previous menu.
4 Use ▲▼ keys to select the preferred option.
5 Press SYSTEM MENU again to exit from the Setup Menu.
➜ All settings will be stored in the DVD player's memory even if the DVD player is switched to power off.

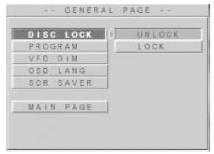
General Setup

Some settings are essential during the start up of the DVD player. For example: DISC LOCK, PROGRAM, OSD LANGUAGE and SCREEN SAVER.

1 Press SYSTEM MENU to enter the Setup menu.
2 Press ▲▼ keys to choose GENERAL SETUP menu.
3 Press OK to confirm selection.
➜ Setting for GENERAL SETUP menu appears on the TV screen.
4 To exit to the default screen, select MAIN PAGE.

Disc Lock

When a disc is locked with a code, the code will be store in the DVD player's memory.
During playback of the locked disc, the DVD player will prompt for the password.

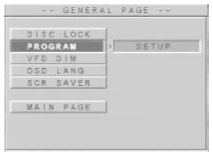


1 Press ▲▼ keys to select the DISC LOCK in the General Setup menu and press OK to confirm.
2 Enter the submenu by pressing the ► key.
➜ LOCK: Lock the disc being played.
➜ UNLOCK: Unlock the disc.
3 Press ◄ key to return to General Setup menu.

Notes:
– When playback a locked disc, the DVD player will prompt to enter your password or 3308 (default) password.
– To change the password, refer to option PASSWORD in PREFERENCE menu.

Program *(not available for DVD discs)*

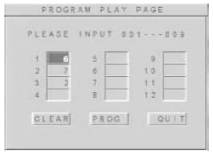
1 Select PROGRAM using ▲▼ keys and press OK to open the menu.
2 Enter the submenu by pressing the ► key.
➜ SETUP: To access into Program mode.



3 Press OK to enter into the Program page.

Storing a track

1 Enter a valid track number using the numerical key pad.
2 Press ◄►▲▼ keys to move the cursor to next selected position.
3 Repeat above sequence to enter another track number until the whole program is completed.
4 Press |◄◄ or ►►| to program more tracks.



Exclude a track

1 Press ◄►▲▼ keys to move the cursor to the track that you want to exclude.
2 Enter an invalid track number.

Cancel all tracks

1 Press ◄►▲▼ keys to move the cursor to the CLEAR button.
2 Press OK to erase all tracks.
3 Now you can input your favourite tracks again.

Playback tracks

When programming is completed,
1 Press ◄►▲▼ keys to move the cursor to the PROG button.
2 Press OK.
➜ Playback starts with the selected programmed sequence.

Stop the program playback

At the program page,
1 Press ◄►▲▼ keys to move the cursor to the QUIT button.
2 Press OK to exit this menu or press STOP key twice.

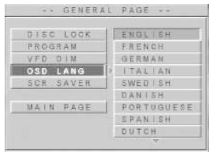
VFD Dim

This function is used to adjust the brightness of the display on the front panel.

1 Press ▲▼ keys to select the VFD DIM in the General Setup menu and press OK to confirm.
2 Enter the submenu by pressing the ► key.
3 Use the ▲▼ keys to highlight an option.
➜ 100: VFD brighter than normal.
➜ 70: standard brightness
➜ 40: VFD to dim mode
➜ OFF: switch off front panel display
4 Press OK and press ◄ key to return to General Setup menu.

OSD Language

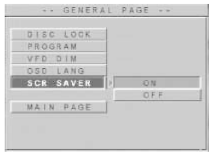
There are 14 languages available for information display on the TV screen.



1 Press ▲▼ keys to select the OSD LANG in the General Setup menu and press OK to confirm.
2 Enter the submenu by pressing the ► key.
3 Use the ▲▼ keys to highlight an option.
➜ ENGLISH: OSD information will be displayed in English.
➜ FRENCH: OSD information will be displayed in Français and etc.
4 Press OK and press ◄ key to return to General Setup menu.

Screen Saver

This function is used to turn on or off the screen saver.



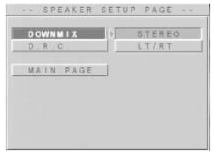
1 Press ▲▼ keys to select the SCR SAVER in the General Setup menu and press OK to confirm.
2 Enter the submenu by pressing the ► key.
3 Use the ▲▼ keys to highlight an option.
➜ ON: At stop mode, screen saver will turn on within 5-6 minutes.
➜ OFF: Screen is disable.
4 Press OK and press ◄ key to return to General Setup menu.

Speaker setup

This menu contains setup options of your speaker system, such as DOWNMIX and D.R.C (Dynamic Range Compression).

1 Press SYSTEM MENU to enter the Setup menu.
2 Press ▲▼ keys to choose SPEAKER SETUP menu.
3 Press OK to confirm selection.
➜ Setting for SPEAKER SETUP menu appears on the TV screen.
4 To exit to default screen, select MAIN PAGE.

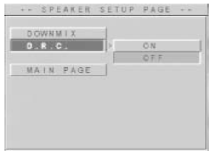
DOWNMIX mode



1 Press ▲▼ keys to select the DOWNMIX in the Speaker Setup menu and press OK to confirm.
2 Enter the submenu by pressing the ▶ key.
3 Use the ▲▼ keys to highlight an option.
➜ LT/RT: Select this settings when the DVD player is connected to a Dolby Pro Logic decoder which send a signal output from the DVD player.
➜ STEREO: This setting will downmix the signal of Dolby Digital and DTS into stereo signals directly output from L/R connector.
4 Press OK and press ◀ key to return to Speaker Setup menu.

D.R.C (Dynamic Range Compression)

To optimised the dynamic sound output. High volume outputs are softened, enabling you to watch your favourite action movie without disturbing others.



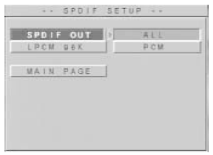
1 Press ▲▼ keys to select the D.R.C. in the Speaker Setup menu and press OK to confirm.
2 Enter the submenu by pressing the ▶ key.
3 Use the ▲▼ keys to highlight an option.
➜ ON: Enable D.R.C.
➜ OFF: Disable D.R.C.
4 Press OK and press ◀ key to return to Speaker Setup menu.

SPDIF setup

1 Press SYSTEM MENU to enter the Setup menu.
2 Press ▲▼ keys to choose SPDIF SETUP menu.
3 Press OK to confirm selection.
➜ Setting for SPDIF setup menu appears on the TV screen.
4 To exit to default screen, select MAIN PAGE.

Note:
– SPDIF is the abbreviation of Sony Philips Digital Interface which is a protocol of digital data transfering.

SPDIF OUT setup



1 Press ▲▼ keys to select the SPDIF OUT in the SPDIF Setup menu and press OK to confirm.
2 Enter the submenu by pressing the ▶ key.
3 Use the ▲▼ keys to highlight an option.
➜ ALL: Original digital signals output
➜ PCM: Convert to PCM signals to digital output.
4 Press OK and press ◀ key to return to SPDIF Setup menu.

LPCM 96K mode

1 Press ▲▼ keys to select the LPCM 96K in the SPDIF Setup menu and press OK to confirm.
2 Enter the submenu by pressing the ▶ key.
3 Use the ▲▼ keys to highlight an option.
➜ ON: Detect the loading disc for appropriate sampling rate.
➜ OFF: The decoding process is under the sampling rate of 48KHz.
4 Press OK and press ◀ key to return to SPDIF Setup menu.

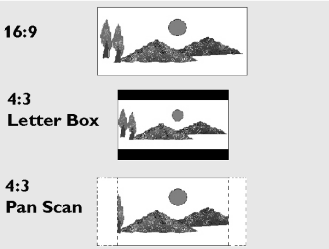
Video Out Setup

Some settings that are included in VIDEO OUT PAGE menu are: TV DISPLAY, VIDEO OUTPUT, TV TYPE, BLACK LEVEL, VIDEO MODE, BRIGHTNESS, CONTRAST, SATURATION, HUE.

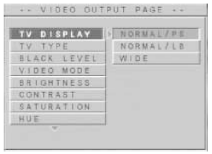
1 Press STOP twice.
2 Press SYSTEM MENU to enter its menu.
3 Select the VIDEO OUTPUT SETUP by pressing ▲▼ key and OK the confirm selection.

TV Display

Select the aspect ratio of the TV to be connected.
16:9 ➜ when you connect a wide-screen TV to the DVD player.
4:3 LETTER BOX ➜ when you connect a normal TV to the DVD player. Displays a wide picture with bands displayed on the upper and lower portions of the TV screen.
4:3 PAN SCAN ➜ when you connect a normal TV to the DVD player. Displays the wide picture on the whole TV screen with a portion automatically cut off.



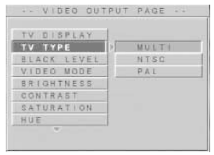
1 Press ▲▼ keys to select the TV DISPLAY in the General Setup menu and press OK to confirm.
2 Enter the submenu by pressing the ▶ key.
3 Use the ▲▼ keys to highlight an option.



4 Press OK and press ◀ key to return to VIDEO OUTPUT Setup menu.

TV Type

This player is equipped with an NTSC/PAL settings to ensure that the DVD player system matches your TV.

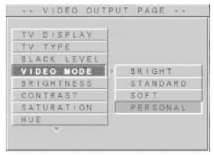


1 Press ▲▼ keys to select the TV TYPE in the General Setup menu and press OK to confirm.
2 Enter the submenu by pressing the ▶ key.
3 Use the ▲▼ keys to highlight an option.
➜ MULTI: Video output is depending on the format of the disc.
➜ NTSC: DVD player will output only NTSC system.
➜ PAL: DVD player will output only PAL system.
4 Press OK and press ◀ key to return to VIDEO OUTPUT Setup menu.

Smart Picture

You can select one of the predefined set of colour settings and one set (Personal) which you can define yourself.

Video mode

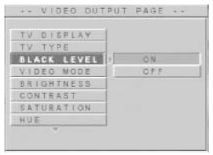


You can choose one picture setting from a fixed predefined set (Bright, Standard and Soft).
1 Press ▲▼ keys to select the VIDEO MODE in the VIDEO OUT Setup menu and press OK to confirm.
2 Enter the submenu by pressing the ▶ key.
3 Use the ▲▼ keys to highlight an option.
➜ BRIGHT: TV screen brighter
➜ STANDARD: Standard picture setting
➜ SOFT: TV screen softer
➜ PERSONAL: Reapply the previous setting
4 Press OK and press ◀ key to return to VIDEO OUTPUT Setup menu.

Personal Picture setting

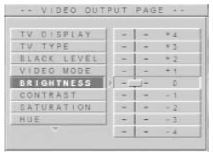
Personal picture setting includes setup of BLACK LEVEL, BRIGHTNESS, CONTRAST, SATURATION and HUE which allows you to personalise your picture setting.

Black Level



1 Press ▲▼ keys to select the BLACK LEVEL in the VIDEO OUT Setup menu and press OK to confirm.
2 Enter the submenu by pressing the ▶ key.
3 Use the ▲▼ keys to highlight an option.
➜ ON: enable smart adjustment of black level
➜ OFF: disable smart adjustment of black level
4 Press OK and press ◀ key to return to VIDEO OUTPUT Setup menu.

Brightness/Contrast/Saturation/Hue



1 Press ▲▼ keys to select the BRIGHTNESS/ CONTRAST/SATURATION/HUE in the VIDEO OUT Setup menu and press OK to confirm.
2 Enter the submenu by pressing the ▶ key.
3 Use the ▲▼ keys to adjust the level.
4 Press OK and press ◀ key to return to VIDEO OUTPUT Setup menu.

Preferences setup

Some settings that are included in PREFERENCES menu are: AUDIO, SUBTITLE, DISC MENU, PARENTAL CONTROL, PASSWORD, DEFAULT and SMART NAV.

1 Press STOP twice.
2 Press SYSTEM MENU to enter its menu.
3 Select the PREFERENCES by pressing ▲▼ key and OK the confirm selection.

Audio language

DVD discs are available for multi-audio languages. Use these settings to select your preferred default language.

1 Press ▲▼ keys to select the AUDIO in the Preferences menu and press OK to confirm.
2 Enter the submenu by pressing the ▶ key.
3 Use the ▲▼ keys to highlight an option.
4 Press OK and press ◀ key to return to Preferences menu.

Notes:
– This feature is subject to availability of the disc.
– If the language selected is not available on the disc, the default language designated by each disc will be selected.

Subtitle language

DVD discs are available for multi-subtitle languages. Use these settings to select your preferred default language.

1 Press ▲▼ keys to select the SUBTITLE in the Preferences menu and press OK to confirm.
2 Enter the submenu by pressing the ▶ key.
3 Use the ▲▼ keys to highlight an option.
4 Press OK and press ◀ key to return to Preferences menu.

Notes:
– This feature is subject to availability of the disc.
– If the language selected is not available on the disc, the default language designated by each disc will be selected.

Disc menu language

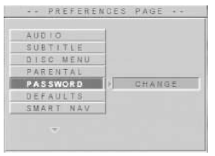
DVD discs are available for multiple disc menu languages. Use these settings to select your preferred default language.

1 Press ▲▼ keys to select the DISC MENU in the Preferences menu and press OK to confirm.
2 Enter the submenu by pressing the ▶ key.
3 Use the ▲▼ keys to highlight an option.
4 Press OK and press ◀ key to return to Preferences menu.

Notes:
– This feature is subject to availability of the disc.
– If the language selected is not available on the disc, the default language designated by each disc will be selected.

Password

You can change the setup of parental control and disc lock. Enter your password when required by the DVD player.



Setup Menu 17

1 Press ▲▼ keys to select the PASSWORD in the Preferences menu and press OK to confirm.
2 Enter the submenu by pressing the ▶ key.
3 Use the ▲▼ keys to highlight an option.

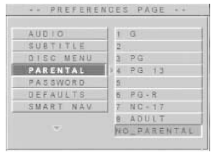
4 Enter the current 4 digit code.
5 Enter a new 4-digit code when the DVD player prompt for a new code.
6 Enter the code a second time to reconfirm.
5 Press PLAY key to return to Preferences menu.
➜ The new 4 digit code will take effect.

Note:
– *If you forget the password, you can enter the default password 3308 and replace your password after logging in.*

Parental Control

Parental Control allows you to prevent discs from being played by your children or to have certain discs played with alternative scenes.

- If you set a rating for the player, all scenes with the same rating or lower will be played.
- If no suitable ratings is found, playback will stop and the 4-digit code has to be entered.
- VCD, SVCD, CD and illegal DVD discs have no level of defination, thus Parental Control is not available on these discs.

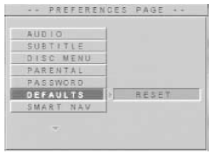


1 Press ▲▼ keys to select the PARENTAL in the Preferences menu and press OK to confirm.
2 Enter the submenu by pressing the ▶ key.
3 Use the ▲▼ keys to highlight a rating from 1 to 8 for the loaded disc.
- Select NO PARENTAL and press OK to deactivated the Parental Control feature.

4 Press OK and press ◀ key to return to Preferences menu.

Default

Use DEFAULT feature if problems occur during setting the DVD player. This feature will reset all settings to factory default and all the personal settings will be erased.



1 Press ▲▼ keys to select the DEFAULTS in the Preferences menu and press OK to confirm.
2 Enter the submenu by pressing the ▶ key.
3 Press OK.

Smart Navigator

Smart Navigator menu will be displayed during picture CD and MP3 CD playback.
1 Press ▲▼ keys to select the SMART NAV in the Preferences menu and press OK to confirm.
2 Enter the submenu by pressing the ▶ key.
3 Use the ▲▼ keys to highlight an option.
➜ NO MENU: playback all images or MP3 musics in sequence automatically
➜ WITH MENU: playback images or MP3 musics in the selected folder.
4 Press OK to confirm your selection.

Specifications 18

PLAYBACK SYSTEM

DVD Video
Video CD & SVCD
CD (CD-Recordable and CD-Rewritable)
MP3 CD
DVD-R & DVD+RW

VIDEO PERFORMANCE

CVBS	1 Vpp into 75 ohm
RGB (SCART)	0.7 Vpp into 75 ohm
Black Level Shift	On/Off
Video Shift	Left/Right

AUDIO FORMAT

Digital	MPEG/AC-3/DTS	Compressed Digital
	PCM	16, 20, 24 bits fs, 44.1, 48, 96 kHz
MPEG MP3	MPEG Audio L3	

Analogue Stereo Sound
Full decoding of Dolby Digital multi-channel surround sound

AUDIO PERFORMANCE

DA Converter	24 bits	
Signal-Noise (1kHz)	90 dB	
Dynamic Range (1kHz)	80 dB	
DVD	fs 96 kHz	4 Hz - 44 kHz
DVD/SVCD	fs 48 kHz	4 Hz - 22 kHz
SVCD/VCD/CD	fs 44.1 kHz	4 Hz - 20 kHz
MPEG MP3	MPEG Audio L3	

TV STANDARD (PAL/50Hz) (NTSC/60Hz)

Number of lines	625	525
Playback	Multistandard	(PAL/NTSC)

CONNECTIONS

SCART	Euroconnector
Video Output	Cinch (yellow)
Audio L+R output	Cinch (white/red)
Digital Output	1 coaxial IEC958 for CDDA / LPCM/ MPEG1 IEC1937 for MPEG2, Dolby Digital and DTS

CABINET

Dimensions (w x h x d)	435 x 293 x 75 mm
Weight	Approximately 2.7 Kg

* *typical playing time for movie with 2 spoken languages and 3 subtitle languages*

Specifications subject to change without prior notice

Maintenance 18

Cleaning the Cabinet

- Use a soft cloth slightly moistened with a mild detergent solution. Do not use a solution containing alcohol, spirits, ammonia or abrasives.

Cleaning Discs

- When a disc becomes dirty, clean it with a cleaning cloth. Wipe the disc from the centre out. Do not wipe in a circular motion.
- Do not use solvents such as benzine, thinner, commercially available cleaners, or antistatic spray intended for analogue records.

Cleaning the disc lens

- After prolonged use, dirt or dust may accumulate at the disc lens. To ensure good playback quality, clean the disc lens with Philips CD Lens Cleaner or any commercially available cleaner. Follow the instructions supplied with the cleaner.

Troubleshooting 19

WARNING

Under no circumstances should you try to repair the system yourself, as this will invalidate the warranty. Do not open the system as there is a risk of electric shock.

If a fault occurs, first check the points listed below before taking the system for repair.

Problem	Solution
No power	– Check if the AC power cord is properly connected.
No picture	– Check if the TV is switched on. – Check the video connection.
Distorted picture	– Sometimes a small amount of picture distortion may appear .This is not a malfunction.
Completely distorted picture or black/white picture with DVD or Video CD	– Make sure the NTSC/PAL setting at the DVD player matches the video signal of your television. (See NTSC/PAL Conversion/Settings)
No sound or distorted sound	– Adjust the volume. – Check that the speakers are connected correctly.
No audio at digital output	– Check the digital connections. – Check the settings menu to make sure the digital output is set to ALL or PCM. – Check if the audio format of the selected audio language matches your receiver capabilities.
No sound and picture	– Check that the SCART cable is connected to the correct device (See Connecting to a TV)
Disc can't be played	– Ensure the disc label is facing up. – Check if the disc is defective by trying another disc. – Region code incorrect.
Picture freezes momentarily during playback	– Check the disc for fingerprints/scratches and clean with a soft cloth wiping from centre to edge.
No return to start-up screen when disc is removed	– Reset the unit by switching the player off, then on again.
The player does not respond to the remote control	– Aim the remote control directly at the sensor on the front of the player. – Reduce the distance to the player. – Replace the batteries in the remote control. – Re-insert the batteries with their polarities (+/– signs) as indicated.
Buttons do not work or player stops responding	– To completely reset the player, unplug the AC cord from the AC outlet for 5-10 seconds.
Player does not respond to some operating commands during playback.	– Operations may not be permitted by the disc. Refer to the instructions of the disc.
DVD Video player cannot read CDs/DVDs	– Use a commonly available cleaning CD/DVD to clean the lens before sending the DVD player for repair.

If you are unable to remedy a problem by following these hints, consult your dealer or service centre (HOTLINE).

Personal Notes:

4. Mechanical- and Dismantling Instructions

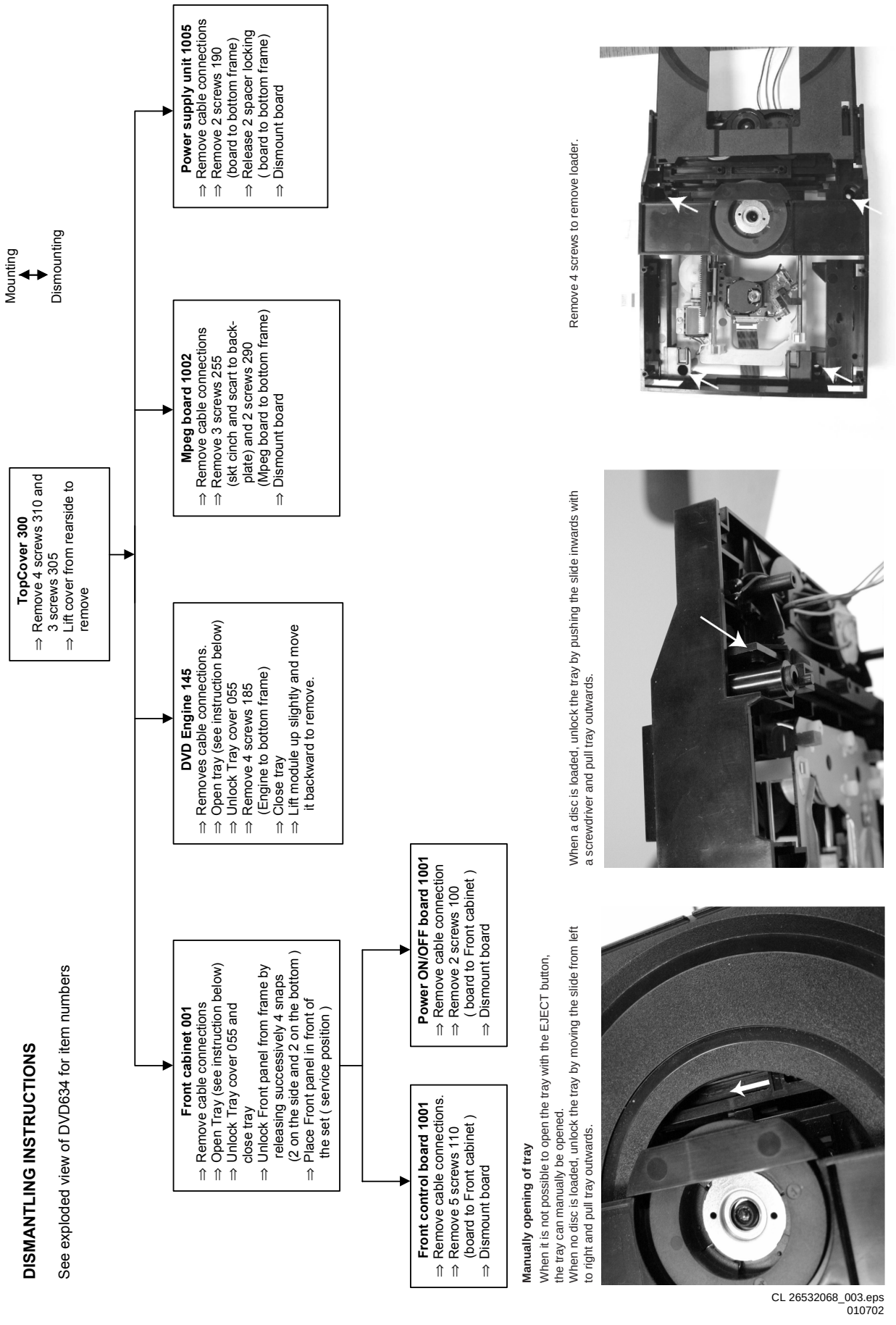

DISMANTLING INSTRUCTIONS
See exploded view of DVD634 for item numbers
Mounting
Dismounting
TopCover 300
⇒ Remove 4 screws 310 and 3 screws 305
⇒ Lift cover from rearside to remove
Front cabinet 001
⇒ Remove cable connections
⇒ Open Tray (see instruction below)
⇒ Unlock Tray cover 055 and close tray
⇒ Unlock Front panel from frame by releasing successively 4 snaps (2 on the side and 2 on the bottom)
⇒ Place Front panel in front of the set (service position)
Front control board 1001
⇒ Remove cable connections.
⇒ Remove 5 screws 110 (board to Front cabinet)
⇒ Dismount board
Power ON/OFF board 1001
⇒ Remove cable connection
⇒ Remove 2 screws 100 (board to Front cabinet)
⇒ Dismount board
DVD Engine 145
⇒ Removes cable connections.
⇒ Open tray (see instruction below)
⇒ Unlock Tray cover 055
⇒ Remove 4 screws 185 (Engine to bottom frame)
⇒ Close tray
⇒ Lift module up slightly and move it backward to remove.
Mpeg board 1002
⇒ Remove cable connections
⇒ Remove 3 screws 255 (skt cinch and scart to back-plate) and 2 screws 290 (Mpeg board to bottom frame)
⇒ Dismount board
Power supply unit 1005
⇒ Remove cable connections
⇒ Remove 2 screws 190 (board to bottom frame)
⇒ Release 2 spacer locking (board to bottom frame)
⇒ Dismount board
Remove 4 screws to remove loader.
When a disc is loaded, unlock the tray by pushing the slide inwards with a screwdriver and pull tray outwards.
Manually opening of tray
When it is not possible to open the tray with the EJECT button, the tray can manually be opened.
When no disc is loaded, unlock the tray by moving the slide from left to right and pull tray outwards.
CL 26532068_003.eps
010702

Figure 4-1 Dismantling Instructions

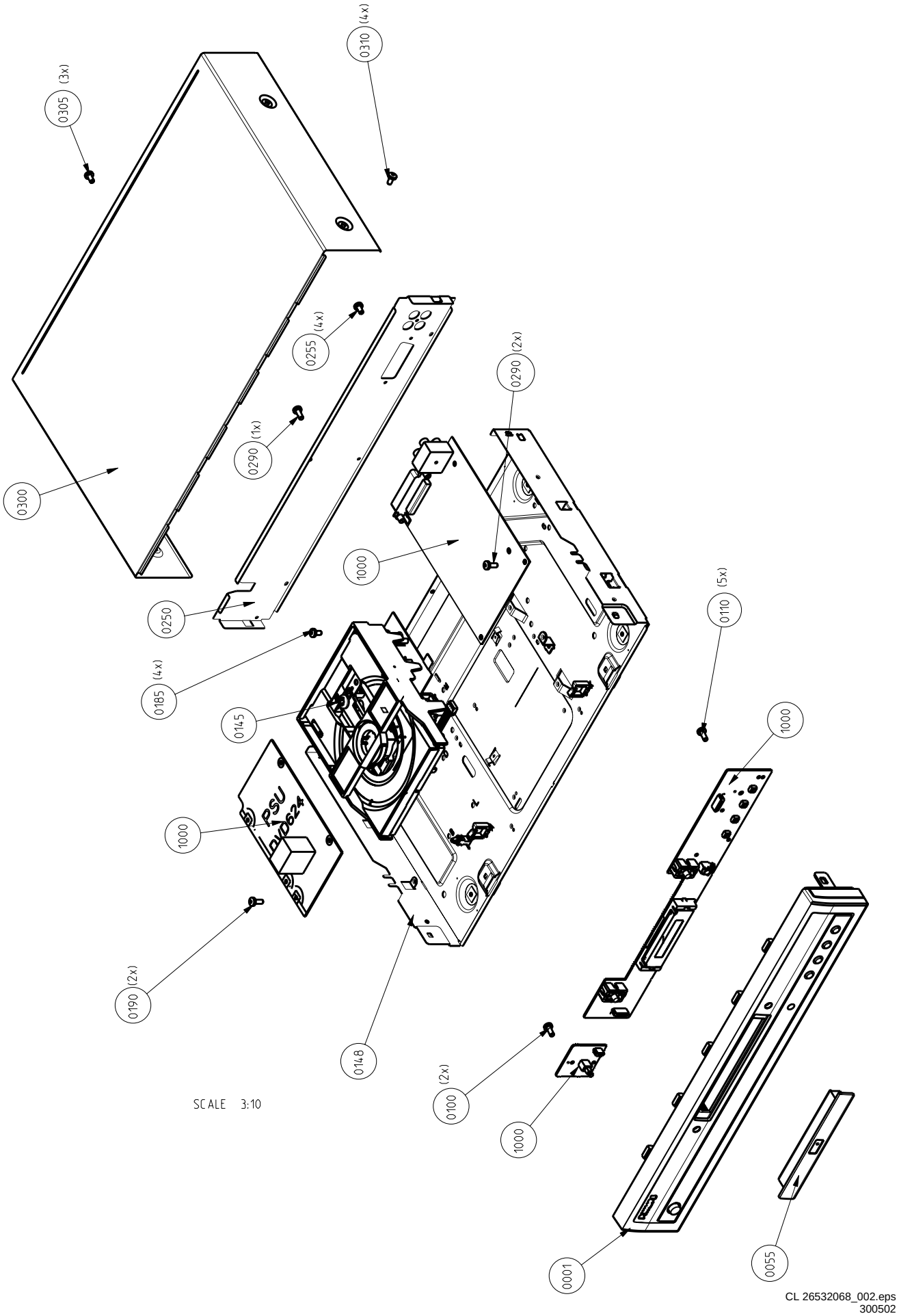


Figure 4-2 Exploded View

5. Diagnostic Software, Trouble Shooting and Test Instructions

5.1 Service Hints

5.1.1 Repair tips

Switched mode power supply
The power supply unit has to be replaced in case of failure. The schematic diagram provided in the service manual is only for information and no service parts will be available.

M3.2 Atapi Engine
The M3.2 Atapi Engine is an integrated unit of VAL6013/03 loader and servo board purchase from POS. According to POS service policy, the loader and servo board are non-repairable unit and in case of failure, it has to be replaced with a complete DVD Atapi Engine.

Mpeg board and Front Display
The Mpeg board and Front display has to be repaired down to component level.

5.1.2 Change of Software setting

The software setting can be change according to the following procedure:
1. Press (OPEN/CLOSE) button on the front of the player or (1) on the remote control to open the disc tray.
2. Enter the 4-digit code (0) (0) (0) (0) on the remote control.
3. Enter one of the keys below to change the software setting.
   - REGION CODE: USA ==> 1
   - EUROPE ==> 2
   - AP ==> 3
   - LATAM ==> 4
   - INDIA / RUSSIA ==> 5
   - CHINA ==> 6
   - (SUBTITLE) Set to Picture CD Off (Off = DVD634)
   - (ANGLE) Set to Picture CD On (On = DVD640 / 733)
   - (ZOOM) Set to 3 front key matrix (for DVD640)
   - (AUDIO) Set to 6 front key matrix (for DVD634)
   - (REPEAT A-B)Set to 4 front key matrix (for DVD733)
4. The change should effect immediately with information indicated on TV screen.

5.1.3 Software upgrade via Download disc

Both the application and servo software can be flashed into the DVD player by means
of a CD-ROM disc. The CD-ROM disc has to be made with a CD writer SW.

Application software
1. Open disc tray on the player.
2. Insert the DOWNLOAD DISC into the player and close disc tray.
3. The upgrading operation will start automatically.
4. Once the DOWNLOAD DISC is recognized, the player will automatically eject the disc tray.
5. Remove the DOWNLOAD DISC.
6. Upgrading of the software will continue with the status being shown on the FTD.
7. Once when the software is upgraded, the disc tray will automatically close.
8. The player will be restarted automatically and display on FTD will show (NO DISC)

Servo software
1. Open disc tray on the player
2. Insert the DOWNLOAD DISC into the player and close disc tray. The player should identify this file as MP3 format.
3. Press (MENU), followed by (SUBTITLE)(AUDIO)(ANGLE) to enter Update Menu for the loader.
4. From the menu, use arrow keys to move down and select UPGRADE menu item.
5. Press right arrow button and then 'OK' to start upgrading.
6. A flashing digit in the bottom line indicates the progress. It will start from 1 and upgrading will be completed when it reaches 30.
7. The player will restart and upgrading is completed.

5.1.4 Verify setting

To check that the setting has change successfully.
1. Press (DISPLAY) button on the remote control while disc tray is open.
2. Two lines text will appear on the TV screen. That is how it looks like.

   DVD640/634_V319_0522
   RG 2 LD 0836 F6 Jpeg-0 3000

In text, the following numbers refer to:
- V319_0522 ==> refer to Application software version
- RG 2 ==> refer to region code
- LD 0836 ==> refer to servo software version
- F6 ==> refer to DVD634/640 front key matrix
- Jpeg-0 ==> refer to Picture CD On/Off

5.1.5 ComPair

There is no ComPair available for DVD634

5.2 Trouble Shooting

In this paragraph some troubleshooting tips are given to diagnos the DVD634 player. For detailed diagnostics, check the faulting tree since no built-in diagnostic software is available in the player.

5.2.1 M3.2 Atapi Engine

The M3.2 Atapi engine is a non-repairable component. Hence, it is necessary to determine if any fault condition of the player are caused by the DVD engine before replacing it.
The engine is a stand-alone system, an integrated unit of VAL6013/03 loader and servo board, which does not need to be connected to the Mpeg board to perform it basic operation. Once a stable voltage is supplied to the engine,some mechanical movement will be observed. Hence, to determine whether the engine is faulty, remove the 40 pins flex cable and observe the mechanical movement. If no mechanical movement is observed, the engine should be faulty and it should be reconfirm with a working engine.
The Mercury 3 Loader has an optical unit consisting of two lasers, one for CD with a wavelength of 780 nm, and one for, DVD with a wavelength of 650 nm. If any one type of disc (DVD or VCD / CD) cannot be identified by the player, it can be sure that the fault is due to the engine.

5.3 Fault Finding Trees

5.3.1 No Operation

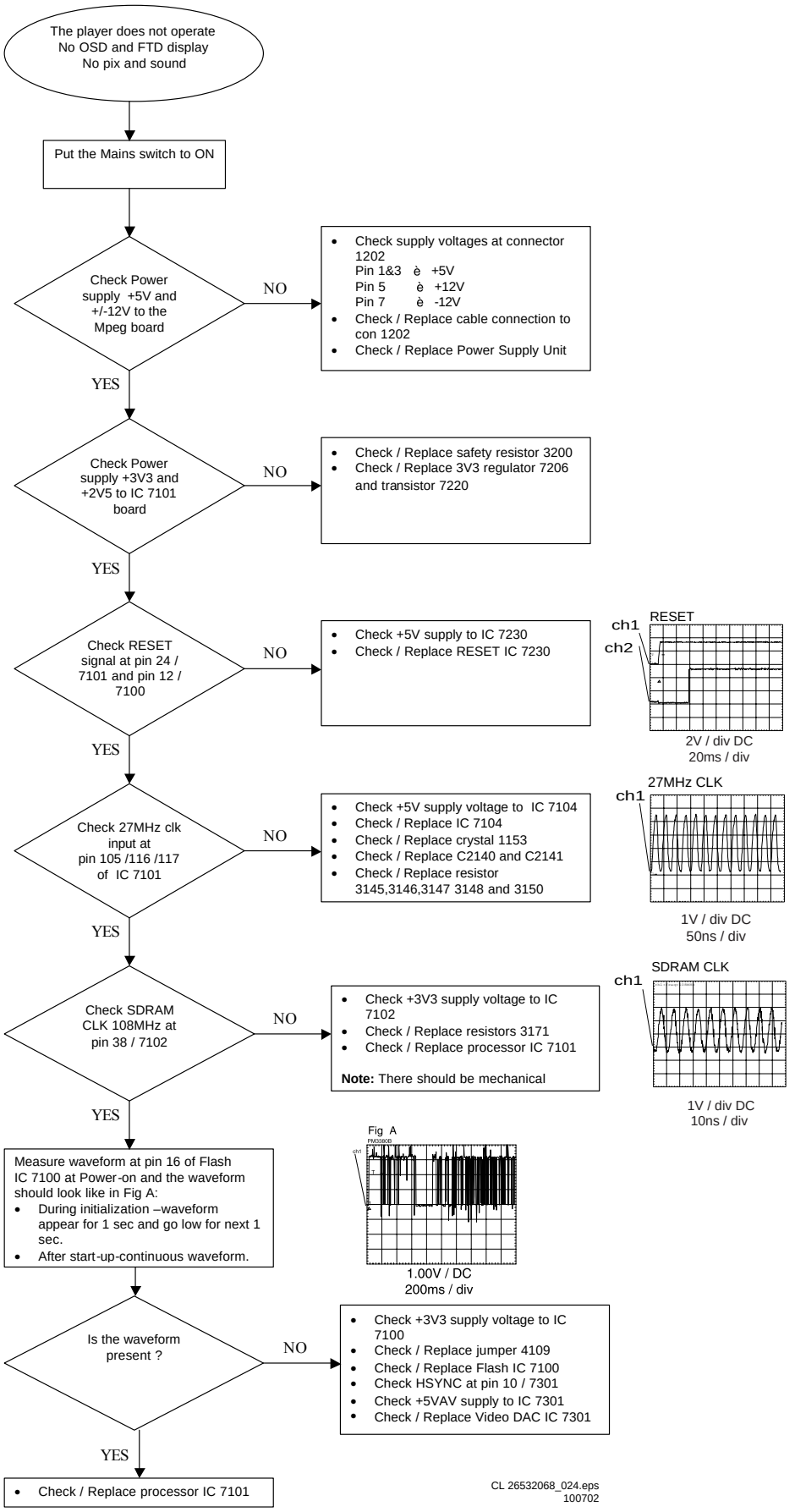

The player does not operate
No OSD and FTD display
No pix and sound
Put the Mains switch to ON
Check Power supply +5V and +/-12V to the Mpeg board
NO
Check supply voltages at connector 1202
Pin 1&3 è +5V
Pin 5 è +12V
Pin 7 è -12V
Check / Replace cable connection to con 1202
Check / Replace Power Supply Unit
YES
Check Power supply +3V3 and +2V5 to IC 7101 board
NO
Check / Replace safety resistor 3200
Check / Replace 3V3 regulator 7206 and transistor 7220
YES
Check RESET signal at pin 24 / 7101 and pin 12 / 7100
NO
Check +5V supply to IC 7230
Check / Replace RESET IC 7230
ch1
ch2
RESET
2V / div DC
20ms / div
YES
Check 27MHz clk input at pin 105 /116 /117 of IC 7101
NO
Check +5V supply voltage to IC 7104
Check / Replace IC 7104
Check / Replace crystal 1153
Check / Replace C2140 and C2141
Check / Replace resistor 3145,3146,3147 3148 and 3150
ch1
27MHz CLK
1V / div DC
50ns / div
YES
Check SDRAM CLK 108MHz at pin 38 / 7102
NO
Check +3V3 supply voltage to IC 7102
Check / Replace resistors 3171
Check / Replace processor IC 7101
Note: There should be mechanical
ch1
SDRAM CLK
1V / div DC
10ns / div
YES
Measure waveform at pin 16 of Flash IC 7100 at Power-on and the waveform should look like in Fig A:
During initialization –waveform appear for 1 sec and go low for next 1 sec.
After start-up-continuous waveform.
Fig A
1.00V / DC
200ms / div
Is the waveform present ?
NO
Check +3V3 supply voltage to IC 7100
Check / Replace jumper 4109
Check / Replace Flash IC 7100
Check HSYNC at pin 10 / 7301
Check +5VAV supply to IC 7301
Check / Replace Video DAC IC 7301
YES
Check / Replace processor IC 7101
CL 26532068_024.eps
100702

Figure 5-1 No operation

5.3.2 No Picture

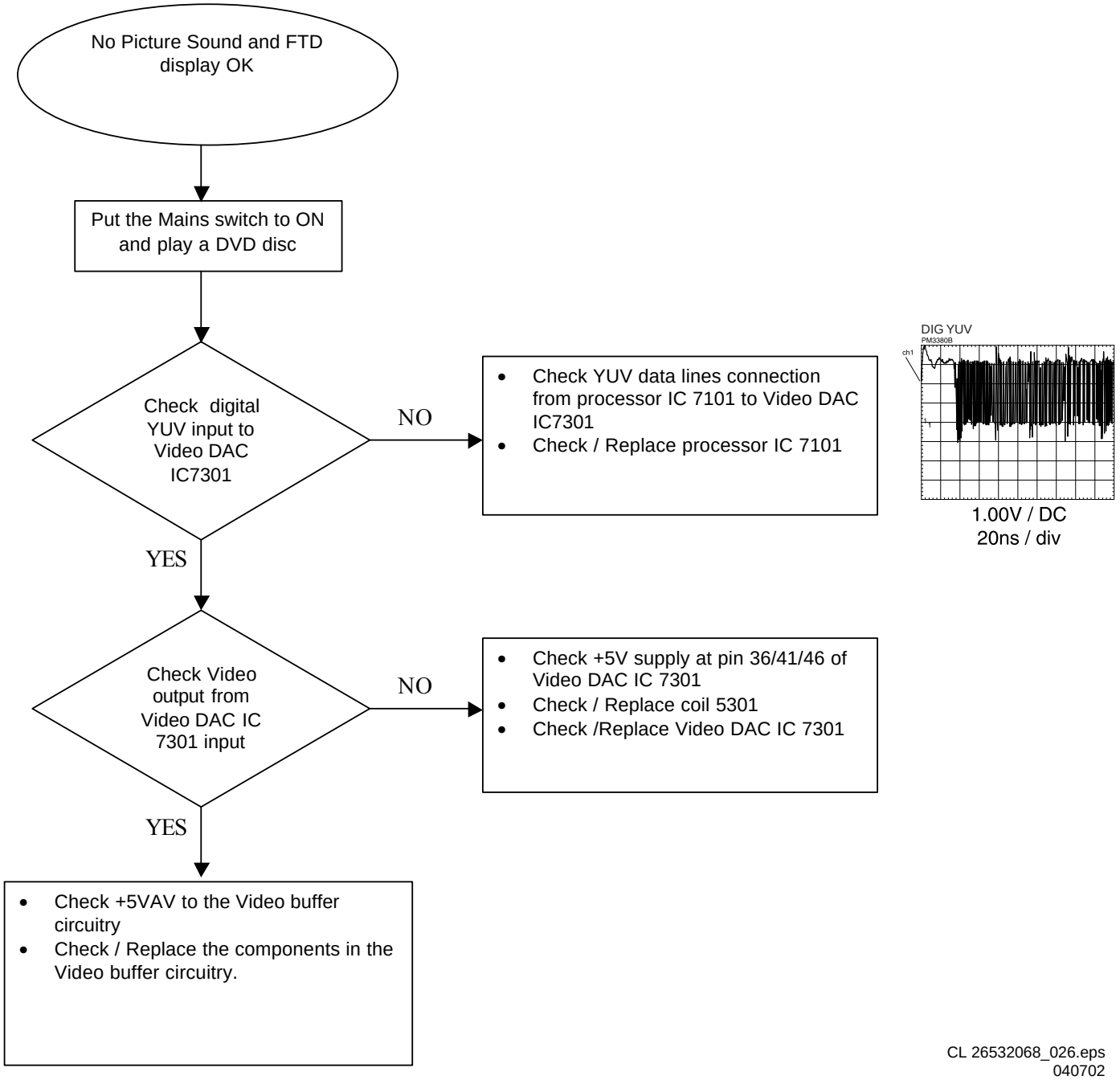

No Picture Sound and FTD display OK
Put the Mains switch to ON and play a DVD disc
Check digital YUV input to Video DAC IC7301
NO
Check YUV data lines connection from processor IC 7101 to Video DAC IC7301
Check / Replace processor IC 7101
YES
Check Video output from Video DAC IC 7301 input
NO
Check +5V supply at pin 36/41/46 of Video DAC IC 7301
Check / Replace coil 5301
Check /Replace Video DAC IC 7301
YES
Check +5VAV to the Video buffer circuitry
Check / Replace the components in the Video buffer circuitry.
DIG YUV
PM3380B
ch1
1.00V / DC
20ns / div
CL 26532068_026.eps
040702

Figure 5-2 No Picture

5.3.3 No Color

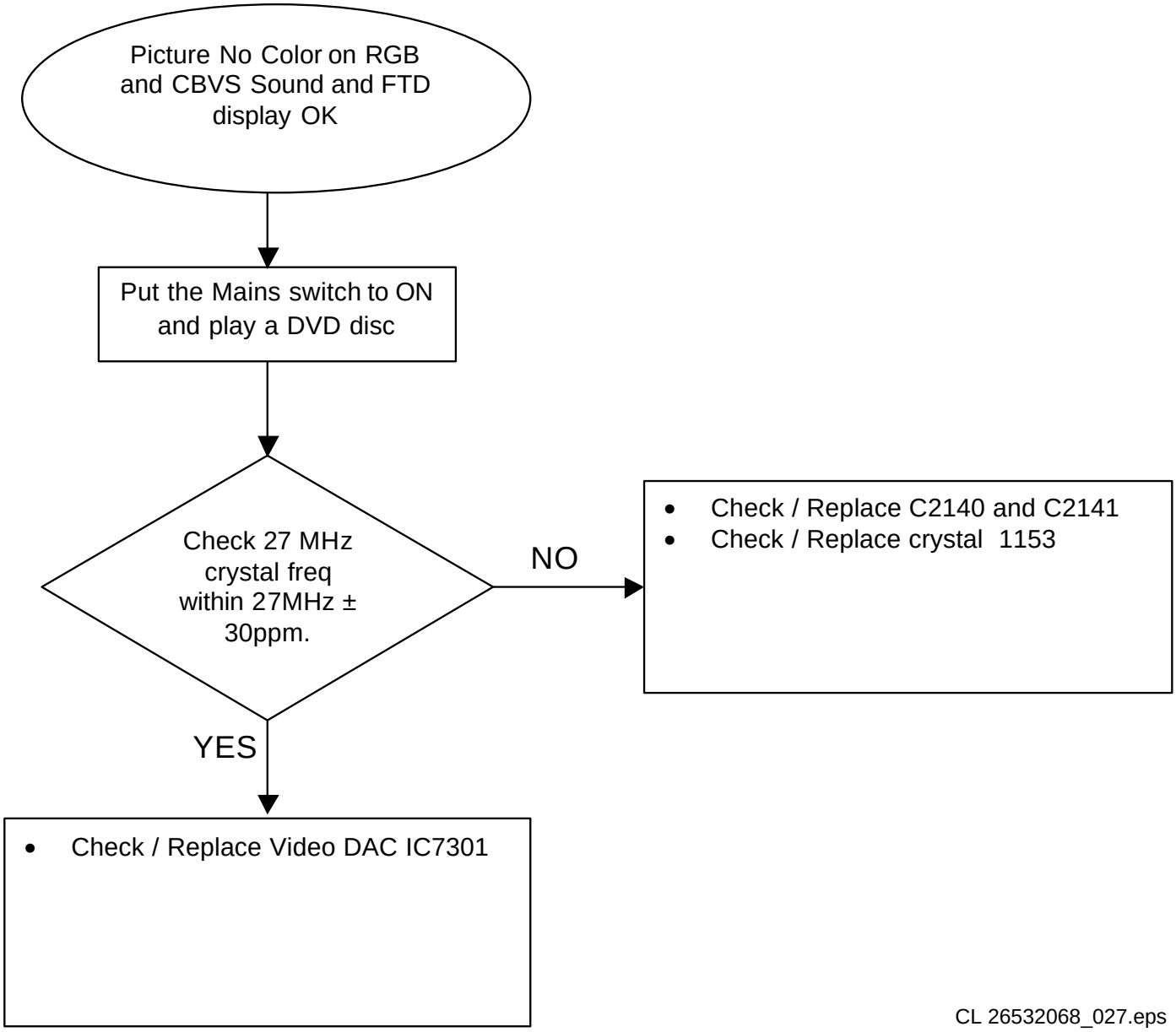

Picture No Color on RGB and CBVS Sound and FTD display OK
Put the Mains switch to ON and play a DVD disc
Check 27 MHz crystal freq within 27MHz ± 30ppm.
NO
Check / Replace C2140 and C2141
Check / Replace crystal 1153
YES
Check / Replace Video DAC IC7301
CL 26532068_027.eps
040702

Figure 5-3 Pix no color

5.3.4 No Sound

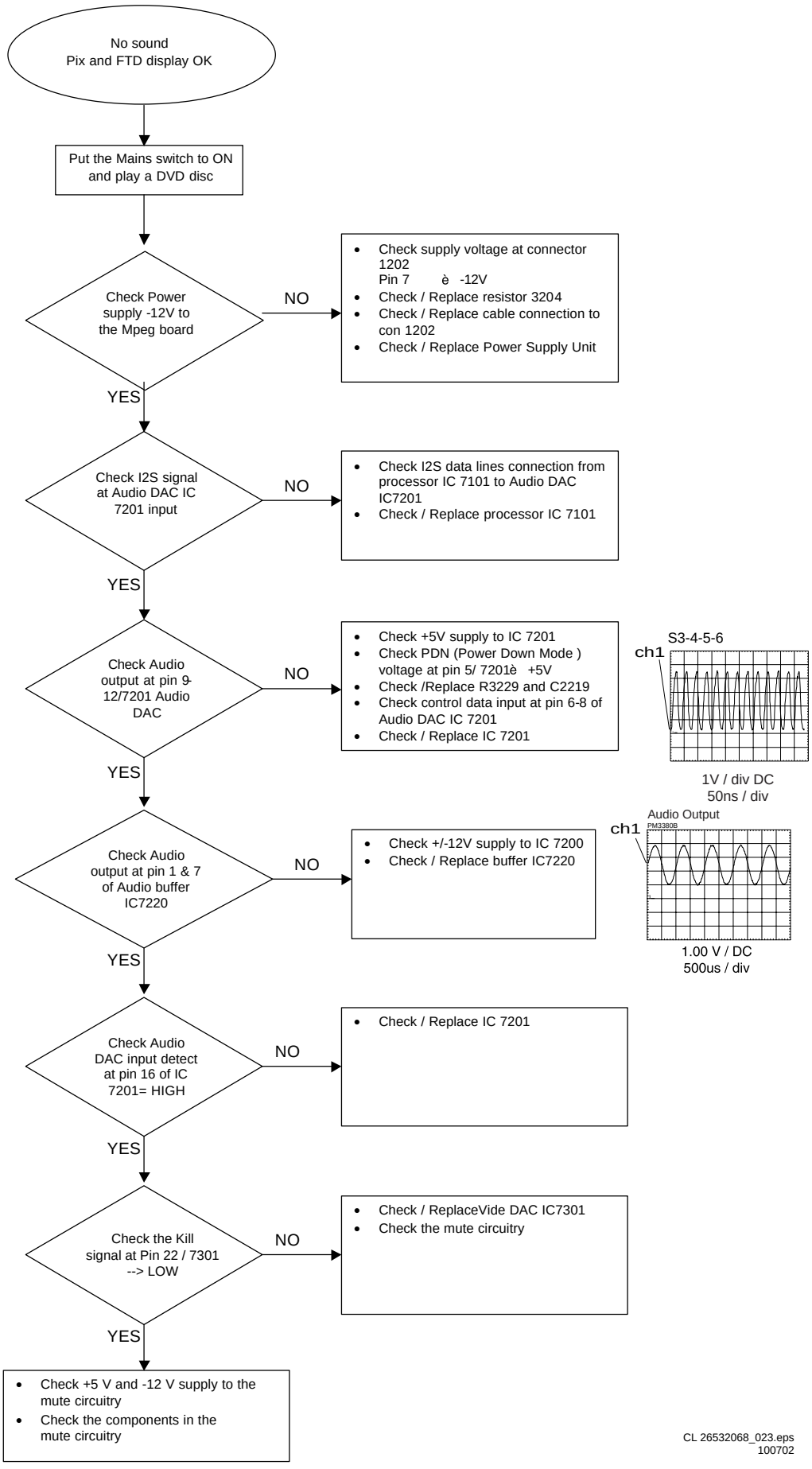
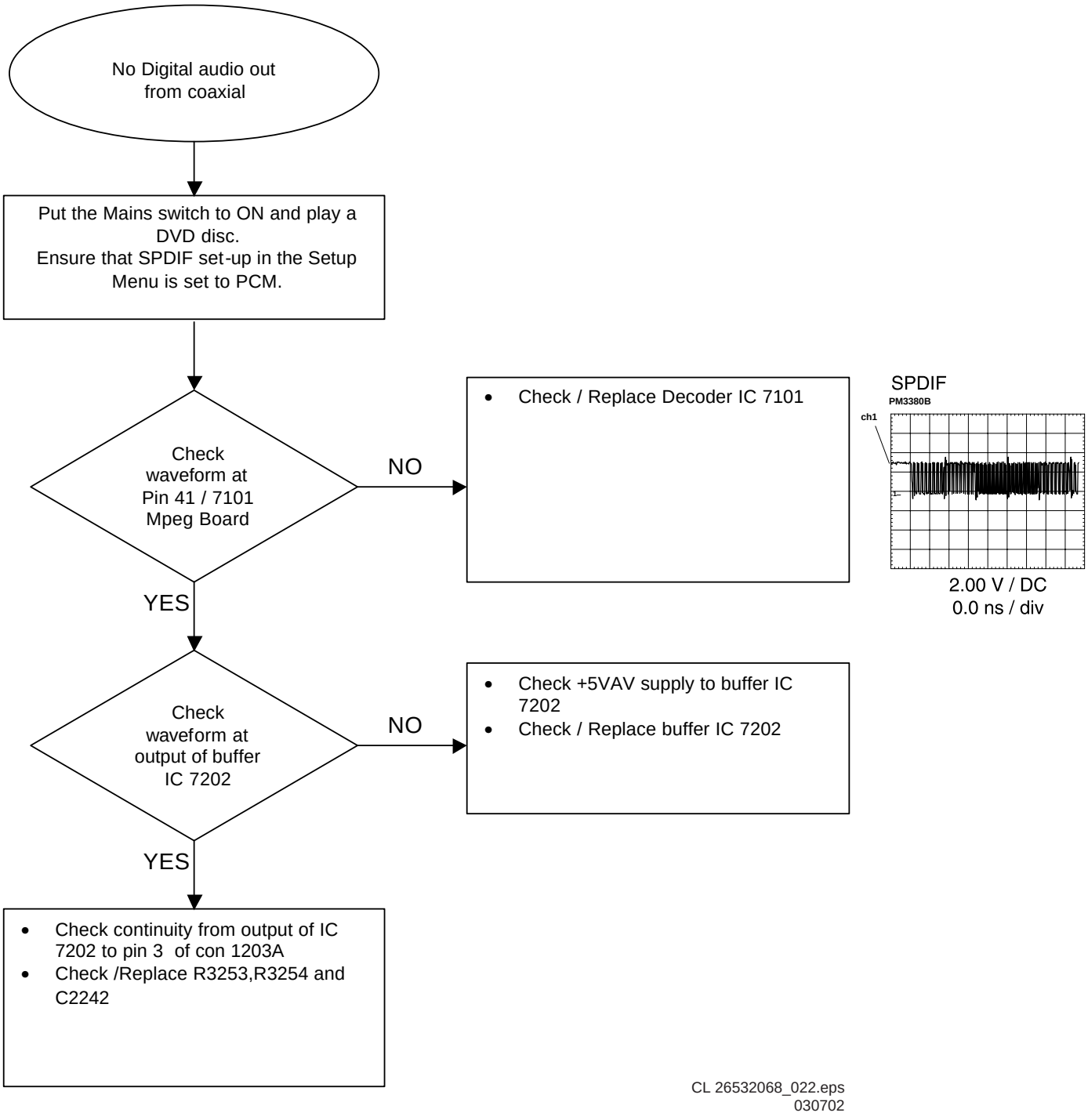

No sound
Pix and FTD display OK
Put the Mains switch to ON and play a DVD disc
Check Power supply -12V to the Mpeg board
NO
Check supply voltage at connector 1202
Pin 7 è -12V
Check / Replace resistor 3204
Check / Replace cable connection to con 1202
Check / Replace Power Supply Unit
YES
Check I2S signal at Audio DAC IC 7201 input
NO
Check I2S data lines connection from processor IC 7101 to Audio DAC IC7201
Check / Replace processor IC 7101
YES
Check Audio output at pin 9-12/7201 Audio DAC
NO
Check +5V supply to IC 7201
Check PDN (Power Down Mode) voltage at pin 5/ 7201è +5V
Check /Replace R3229 and C2219
Check control data input at pin 6-8 of Audio DAC IC 7201
Check / Replace IC 7201
S3-4-5-6
ch1
1V / div DC
50ns / div
YES
Check Audio output at pin 1 & 7 of Audio buffer IC7220
NO
Check +/-12V supply to IC 7200
Check / Replace buffer IC7220
Audio Output
ch1
1.00 V / DC
500us / div
YES
Check Audio DAC input detect at pin 16 of IC 7201= HIGH
NO
Check / Replace IC 7201
YES
Check the Kill signal at Pin 22 / 7301 --> LOW
NO
Check / ReplaceVide DAC IC7301
Check the mute circuitry
YES
Check +5 V and -12 V supply to the mute circuitry
Check the components in the mute circuitry
CL 26532068_023.eps
100702

Figure 5-4 No sound

5.3.5 No Digital Audio Out


No Digital audio out from coaxial
Put the Mains switch to ON and play a DVD disc.
Ensure that SPDIF set-up in the Setup Menu is set to PCM.
Check waveform at Pin 41 / 7101 Mpeg Board
NO
Check / Replace Decoder IC 7101
SPDIF
PM3380B
ch1
2.00 V / DC
0.0 ns / div
YES
Check waveform at output of buffer IC 7202
NO
Check +5VAV supply to buffer IC 7202
Check / Replace buffer IC 7202
YES
Check continuity from output of IC 7202 to pin 3 of con 1203A
Check /Replace R3253,R3254 and C2242
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030702

Figure 5-5 No Digital audio out

5.3.6 No RC and FTD Display

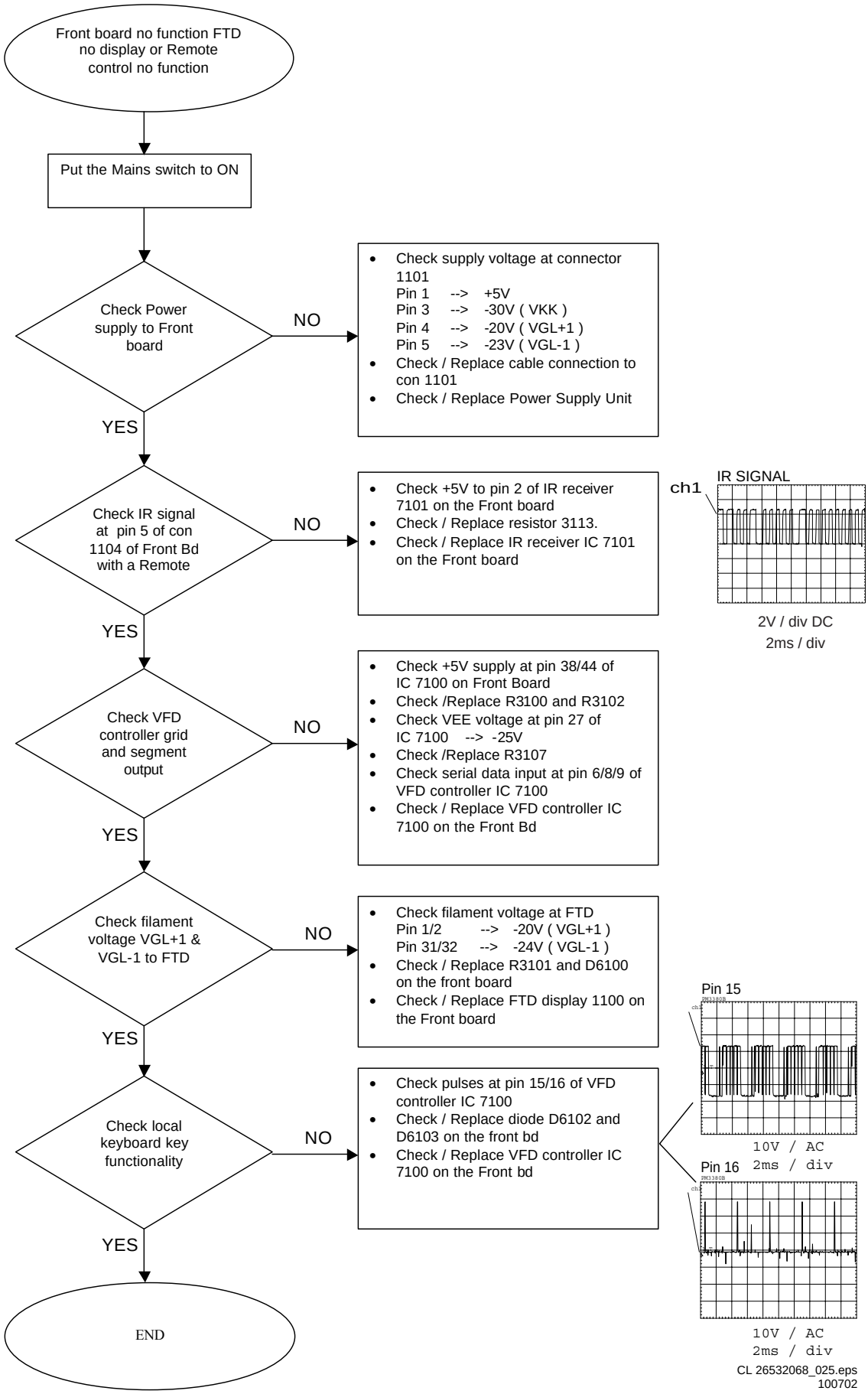
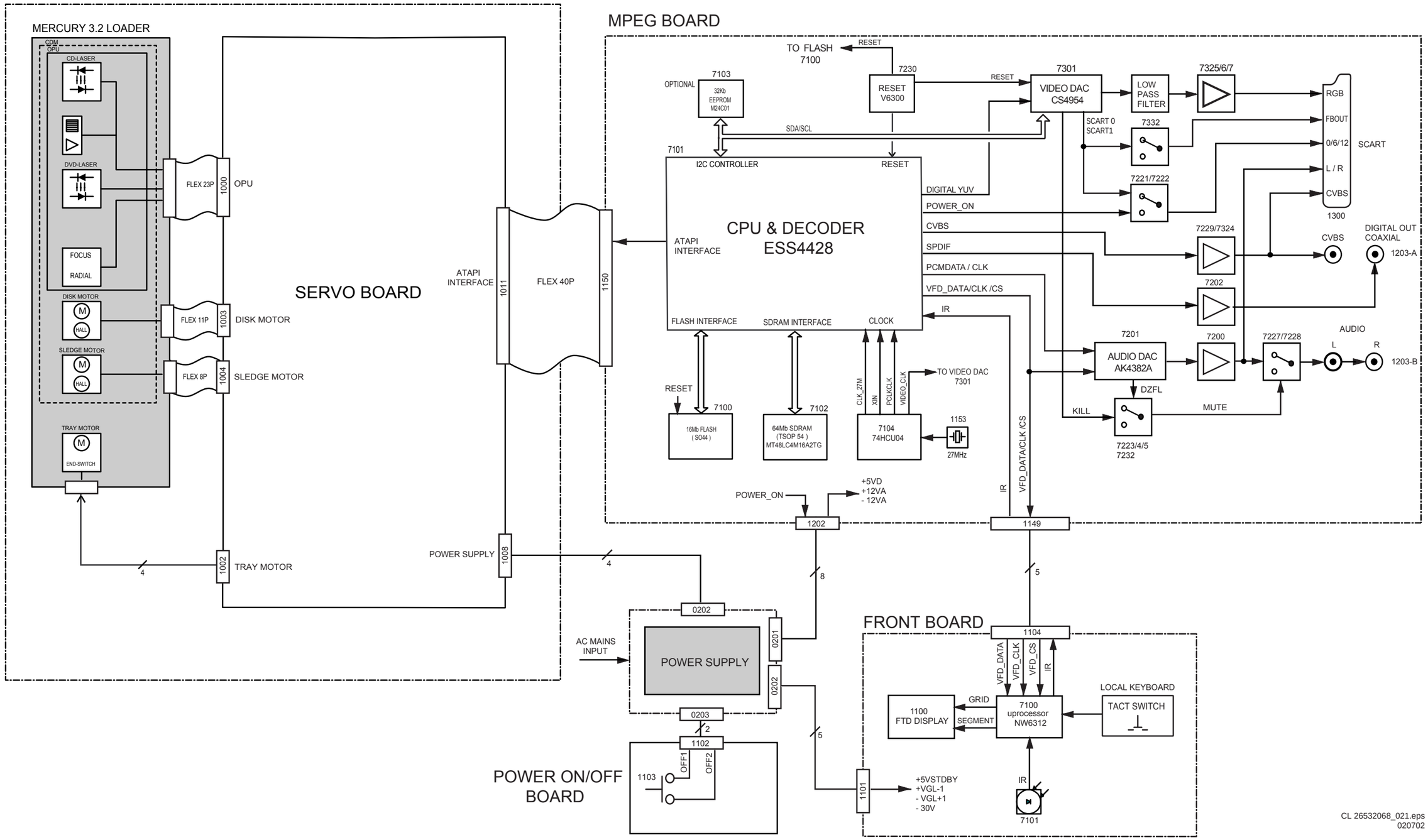

Front board no function FTD no display or Remote control no function
Put the Mains switch to ON
Check Power supply to Front board
NO
Check supply voltage at connector 1101
Pin 1 --> +5V
Pin 3 --> -30V (VKK)
Pin 4 --> -20V (VGL+1)
Pin 5 --> -23V (VGL-1)
Check / Replace cable connection to con 1101
Check / Replace Power Supply Unit
YES
Check IR signal at pin 5 of con 1104 of Front Bd with a Remote
NO
Check +5V to pin 2 of IR receiver 7101 on the Front board
Check / Replace resistor 3113.
Check / Replace IR receiver IC 7101 on the Front board
IR SIGNAL
ch1
2V / div DC
2ms / div
YES
Check VFD controller grid and segment output
NO
Check +5V supply at pin 38/44 of IC 7100 on Front Board
Check /Replace R3100 and R3102
Check VEE voltage at pin 27 of IC 7100 --> -25V
Check /Replace R3107
Check serial data input at pin 6/8/9 of VFD controller IC 7100
Check / Replace VFD controller IC 7100 on the Front Bd
YES
Check filament voltage VGL+1 & VGL-1 to FTD
NO
Check filament voltage at FTD
Pin 1/2 --> -20V (VGL+1)
Pin 31/32 --> -24V (VGL-1)
Check / Replace R3101 and D6100 on the front board
Check / Replace FTD display 1100 on the Front board
Pin 15
YES
Check local keyboard key functionality
NO
Check pulses at pin 15/16 of VFD controller IC 7100
Check / Replace diode D6102 and D6103 on the front bd
Check / Replace VFD controller IC 7100 on the Front bd
10V / AC
2ms / div
Pin 16
10V / AC
2ms / div
YES
END
CL 26532068_025.eps
100702

Figure 5-6 No RC and FTD display

6. Block and Wiring Diagram.

Block Diagram

GENERAL BLOCK DIAGRAM DVD634 EU
DVD ENGINE VAE6013/11



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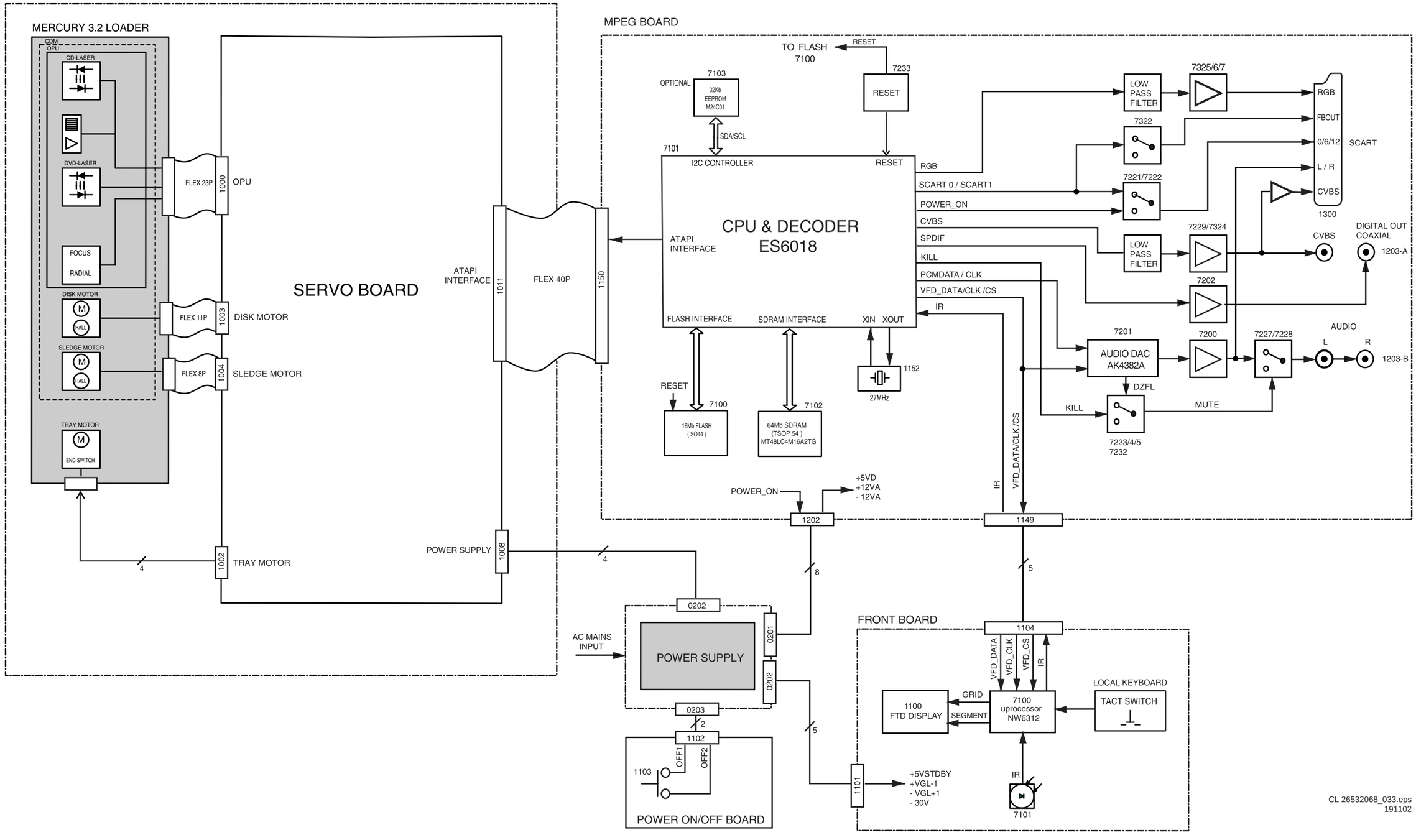
020702

Block Diagram

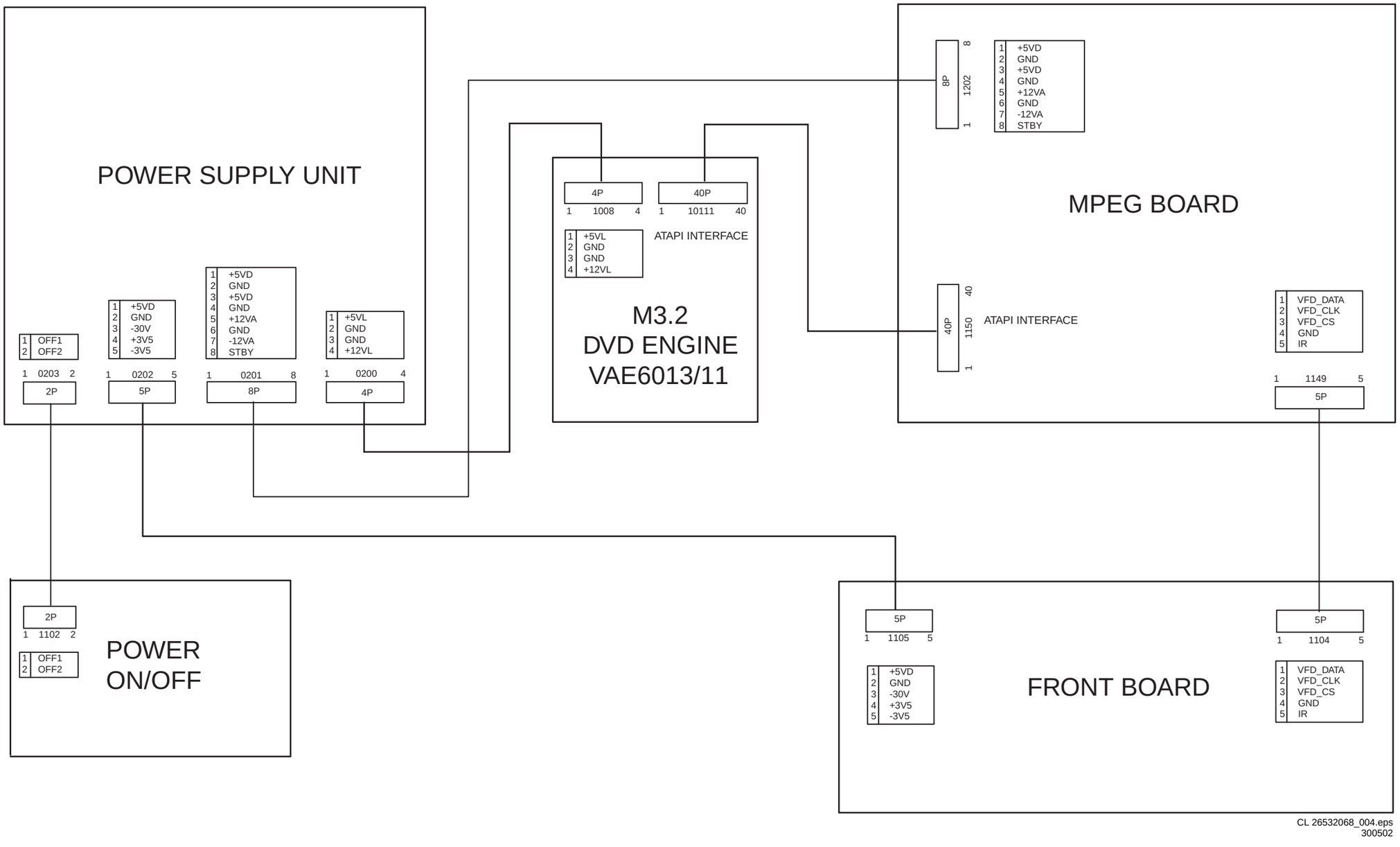
GENERAL BLOCK DIAGRAM DVD634 EU - ES6018 Mpeg
DVD ENGINE VAE6013/11



CL 26532068_033.eps
191102

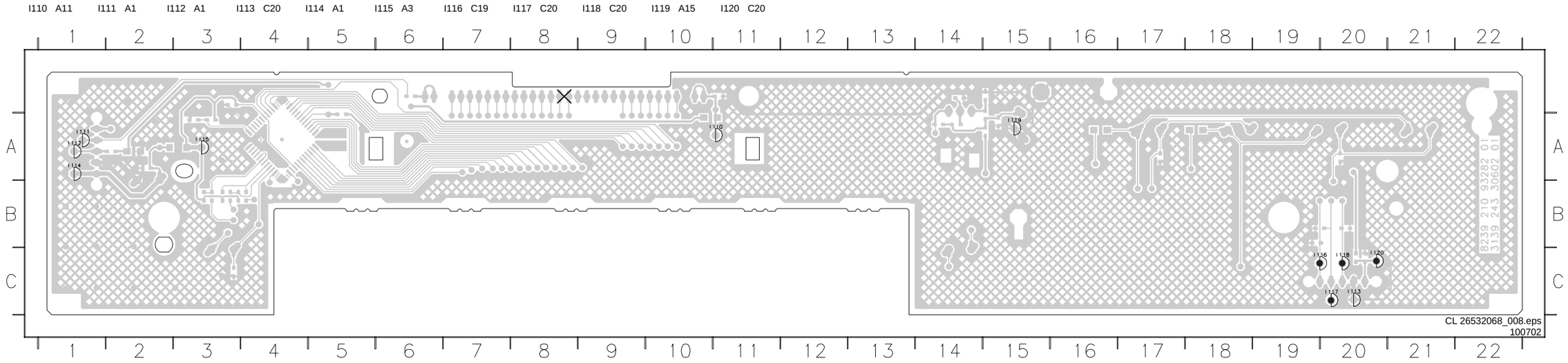
Wiring Diagram

WIRING DIAGRAM FOR DVD634 EU

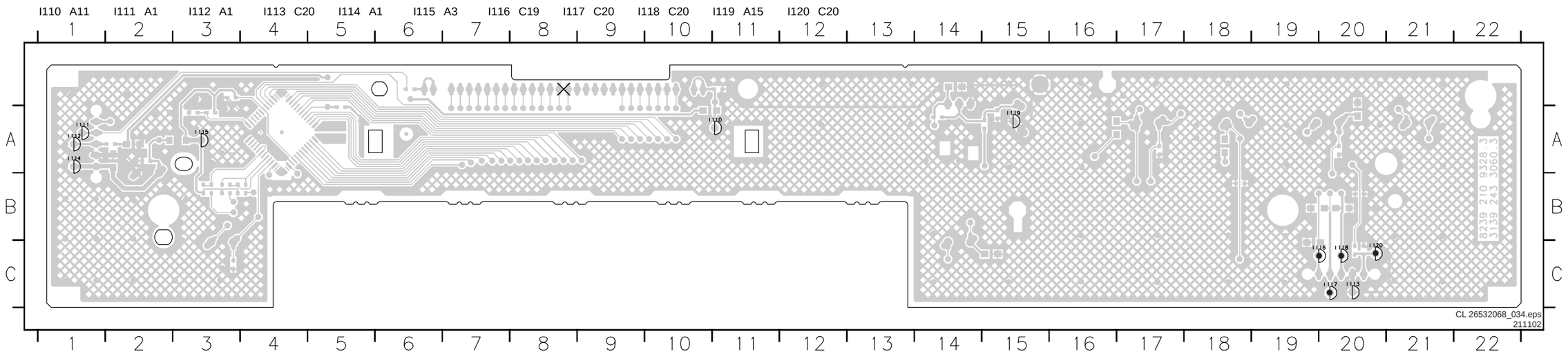


CL 26532068_004.eps
300502

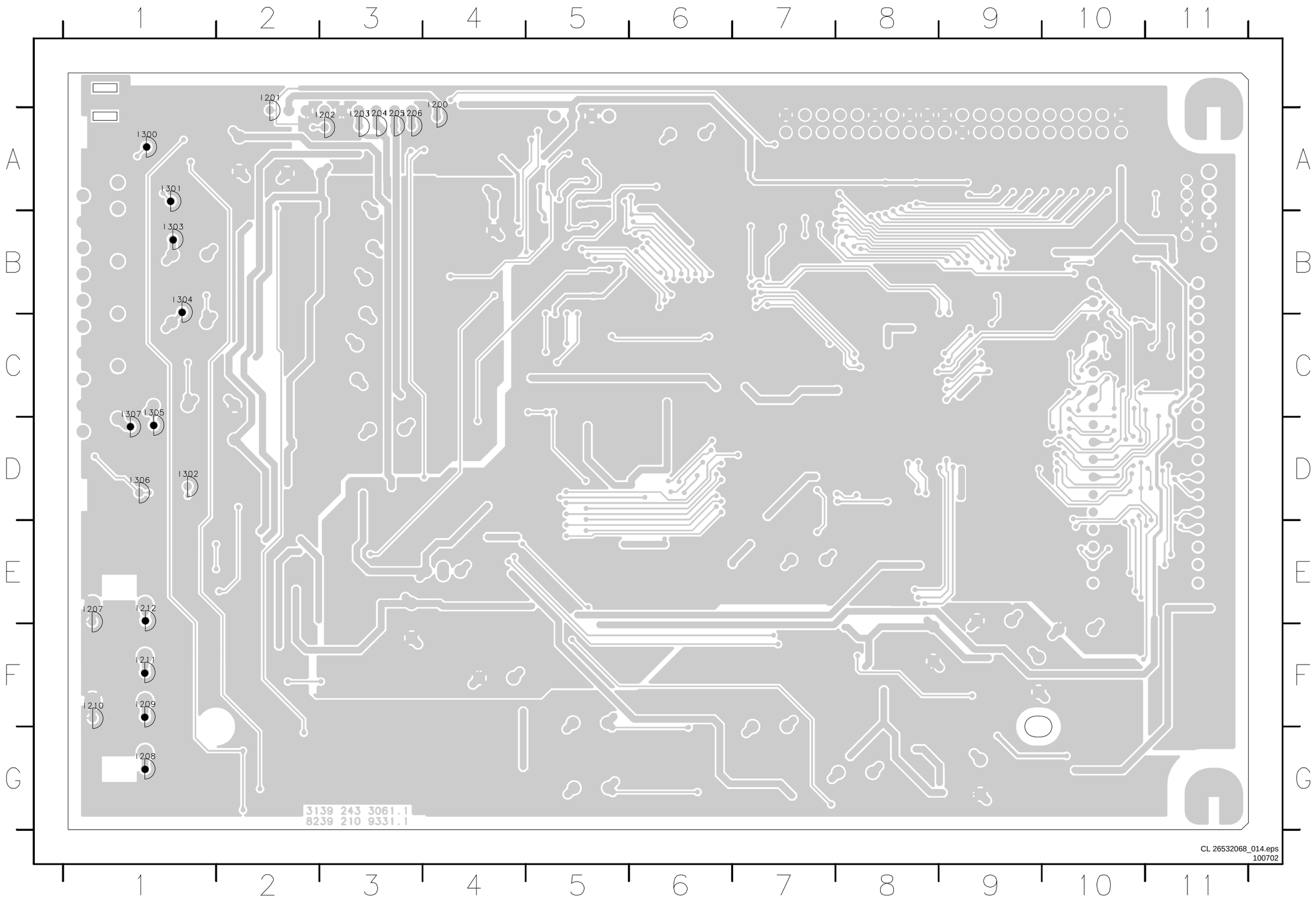
Test Point Overview Display Board - Bare Board 30602



Test Point Overview Display Board - Bare Board 30603

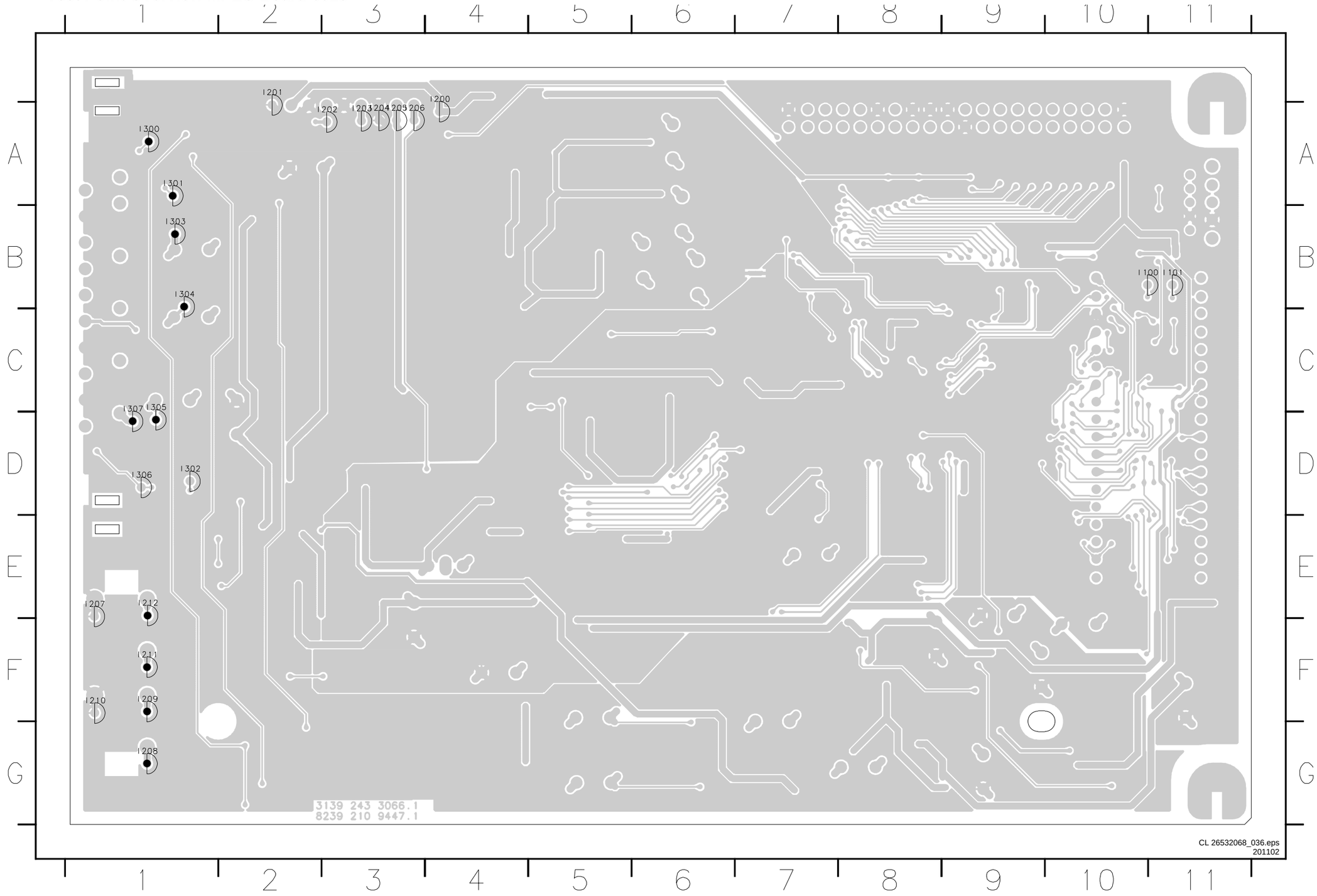


Test Point Overview MPEG Board 4428



I200 A4
I201 A2
I202 A3
I203 A3
I204 A3
I205 A3
I206 A3
I207 E1
I208 G1
I209 F1
I210 F1
I211 F1
I212 E1
I300 A1
I301 A1
I302 D1
I303 B1
I304 B1
I305 D1
I306 D1
I307 D1

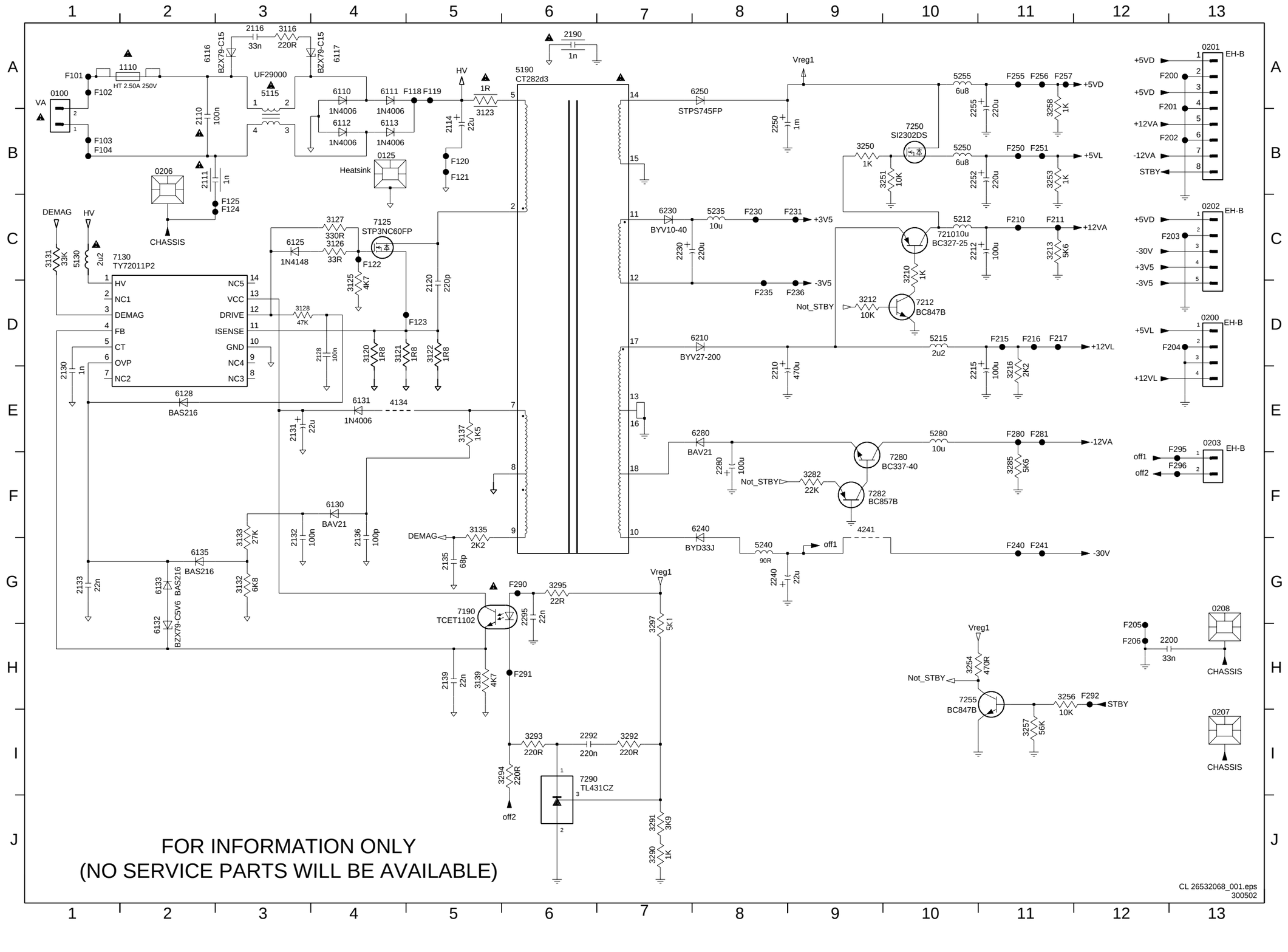
Test Point Overview MPEG Board 6018



I100	B10
I101	B11
I200	A4
I201	A2
I202	A3
I203	A3
I204	A3
I205	A3
I206	A3
I207	E1
I208	G1
I209	F1
I210	F1
I211	F1
I212	E1
I300	A1
I301	A1
I302	D1
I303	B1
I304	B1
I305	D1
I306	D1
I307	D1

7. Electrical Diagrams

Power Supply Unit



Display Board - Bare Board 30602

DISPLAY

1100
HNV-07SS41T

FTD

RT-01T 1
1111

1101
FROM 0202 OF PSU
I110 -23V VGL-1
I111 -20V VGL+1
I112 -30V VKK
I113
I114
3100 4R7
I115 +5V VCC1
2100 47u
2101 100n
2102 100n

1104
DIPMATE
TO/FROM 1149 OF MPEG BOARD
VFD_DATA I116
VFD_CLK I117
VFD_CS I118
I119
IR I120
3106 100R
3109 100R
3108 100R
2107 2n2
3110 0R
2108 22p
2109 22p
2110 22p

7101
TSOP2236
INP
CTRL CIRCUIT
AGC
BAND PASS
DEM
PIN
VS
OUT
GND
*4100
4101
3112 10K
*4102
3113 47R
+5V
4103
2105 100n
2106 47u

VGL+1 3101 10R -20V
VCC1 3102 56K +5V
*2103 1n

7100
NW6312
OSC Vss LED1 LED2 LED3 LED4 VDD G1 G2 G3 G4
SW1 SW2 SW3 SW4 DOUT DIN Vss CLK STB KEY1 KEY2 KEY3 KEY4 VDD S2/K1 S2/K2 S3/K3 S4/K4 S5/K5 S6/K6 Seg7 Seg8
G5 G6 S16/G7 S15/G8 S14/G9 S13/G10 VEE Seg12 Seg11 Seg10 Seg9

3103 10K
3104 10K
3105 10K
4V8
3V3
0V
VCC1
25V
3107 330R
VKK
2104 100n
6100 PDZ-2.4B
6101 PDZ-2.4B
-23V VGL-1
3111 47K

1105 STOP
1106 NEXT
1107 O/C
1108 PLAY
1109 PREV
1110 PICTURE
6102 BAS316
6103 BAS316
3114 4K7
3115 4K7
3116 4K7

* OPTION

V DC vtg measured in STOP-MODE

BARE BOARD 3139 243 30602

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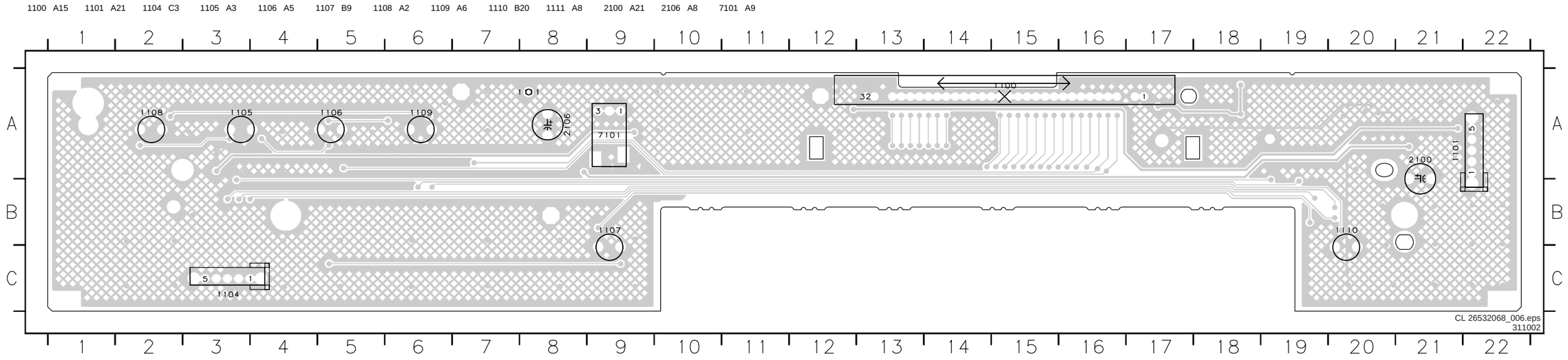
1100 A6
1101 B1
1104 C1
1105 E5
1106 E5
1107 E6
1108 E5
1109 E5
1110 E6
1111 A1
2100 C2
2101 C2
2102 C2
2103 C6
2104 D9
2105 F3
2106 F3
2107 E2
2108 D3
2109 D4
2110 D4
3100 B2
3101 B5
3102 B5
3103 C5
3104 C5
3105 C6
3106 D5
3107 D10
3108 D5
3109 D5
3110 E3
3111 E9
3112 E3
3113 E4
3114 F4
3115 F5
3116 F6
4100 E3
4101 E3
4102 F3
4103 F3
6100 D9
6101 D9
6102 E6
6103 F6
7100 C6
7101 E1
I110 B2
I111 B2
I112 B2
I113 B1
I114 B2
I115 B2
I116 D2
I117 D2
I118 D2
I119 D1
I120 D2

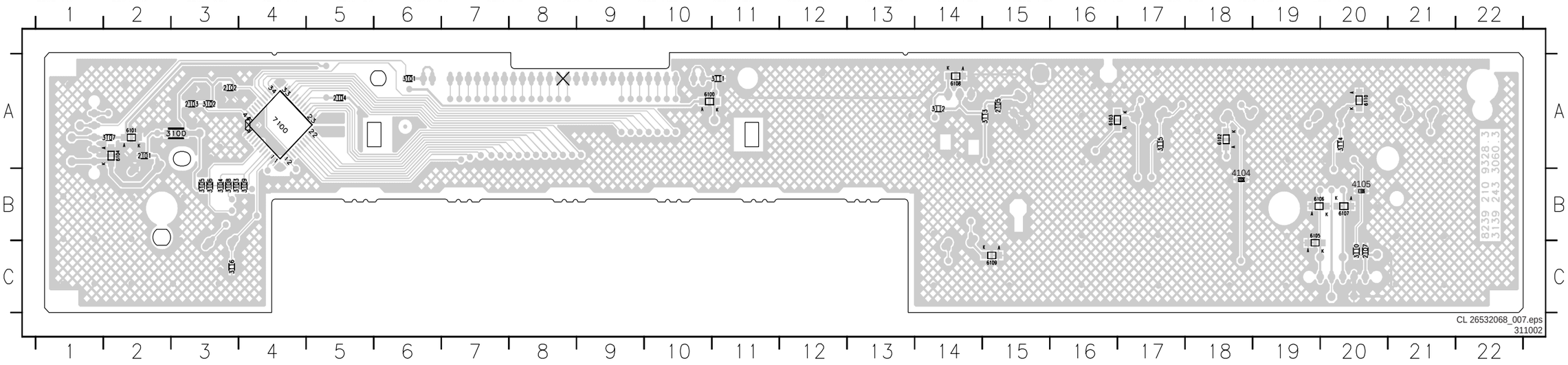
Layout Display Board (Top Side) - Bare Board 30602

1100 A15 1101 A21 1104 C3 1105 A3 1106 A5 1107 B9 1108 A2 1109 A6 1110 B20 1111 A8 2100 A21 2106 A8 7101 A9



Layout Display Board (BottomSide) - Bare Board 30602

2101 A2 2102 A3 2103 A3 2104 A5 2105 A15 2107 C20 3100 A3 3101 A6 3102 A3 3103 B3 3104 B3 3105 B3 3106 B3 3107 A2 3108 B3 3109 B4 3110 C20 3111 A11 3112 A14 3113 A15 3114 A20 3115 A17 3116 C3 4104 B18 4105 B20 6100 A10 6101 A2 6102 A18 6103 A16 6104 A2 6105 B19 6106 B19 6107 B20 6108 A14 6109 C15 6110 A20 7100 A4



Display Board - Bare Board 30603

DISPLAY

1100
HNV-07SS41T

FTD DISPLAY

RT-01T 1
1111

1101
FROM 0202 OF PSU P
I110 VGL-1
I111 VGL+1
I112 VKK
I113
I114
I115 VCC1
+5V
6104 PDZ-5.6B 2100
47u 2101
100n 2102
100n
3100 4R7

VGL+1 3101 10R -20V
VCC1 3102 56K +5V
*2103 1n
-23V VGL-1

7100
NW6312
OSC Vss LED1 LED2 LED3 LED4 VDD G1 G2 G3 G4
SW1 SW2 SW3 SW4 DOUT DIN Vss CLK STB KEY1 KEY2 KEY3 KEY4 VDD S2/K1 S2/K2 S3/K3 S4/K4 S5/K5 S6/K6 Seg7 Seg8
G5 G6 S16/G7 S15/G8 S14/G9 S13/G10 VEE Seg12 Seg11 Seg10 Seg9

VCC1
3103 10K 3104 10K 3105 10K
4V8 4V8 3V3 3V3 0V 0V
3106 100R 3109 100R 3108 100R
25V 3107 330R VKK
2104 100n 6100 PDZ-2.4B 6101 PDZ-24B
-23V VGL-1
3111 47K

1104
DIPMATE
TO/FROM 1149 OF MPEG BOARD M1
I116 VFD_DATA
I117 VFD_CLK
I118 VFD_CS
I119
I120 IR
2107 2n2
3110 0R
6105 PDZ-5.6B 6106 * PDZ-5.6B 6107 PDZ-5.6B

1105 STOP
1106 NEXT
1107 O/C
1108 PLAY
1109 PREV
1110 PICTURE
0V
VCC1
6102 BAS316
6103 BAS316
3114 4K7 6110 PDZ-5.6B 3115 4K7
3116 4K7 6109 PDZ-5.6B

7101
TSOP2236
INP CTRL CIRCUIT VS OUT GND PIN AGC BAND PASS DEM
3112 10K
3113 47R +5V
6108 PDZ-5.6B
2105 100n 2106 47u

* RESERVED

V DC vtg measured in STOP-MODE

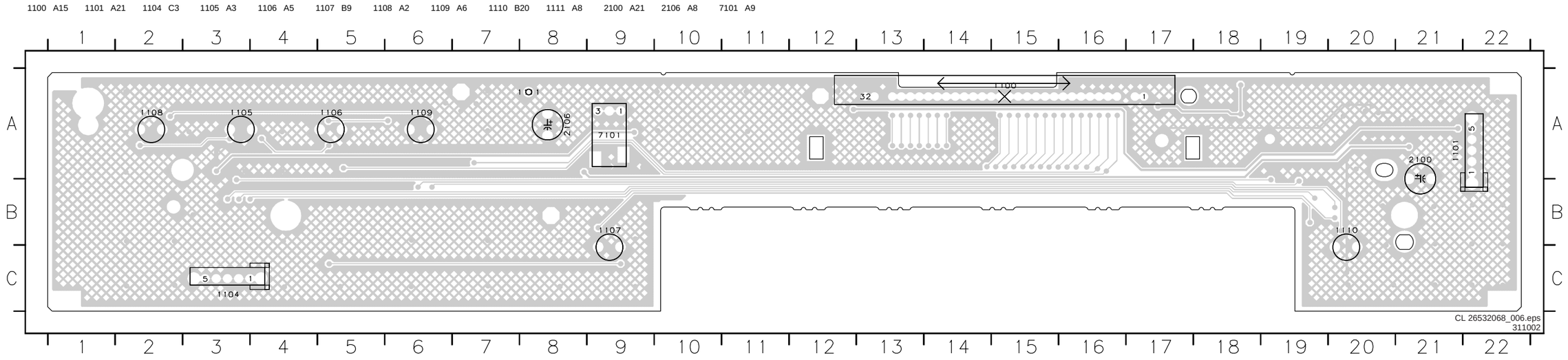
BARE BOARD 3139 243 30603

CL 26532068_035.eps
201102

1100 A6
1101 B1
1104 C1
1105 E5
1106 E5
1107 E6
1108 E5
1109 E5
1110 E6
1111 A1
2100 C2
2101 C2
2102 C3
2103 C6
2104 D9
2105 F3
2106 F3
2107 E2
3100 B2
3101 B5
3102 B5
3103 C5
3104 C5
3105 C6
3106 D5
3107 D10
3108 D5
3109 D5
3110 E3
3111 E9
3112 E3
3113 E4
3114 F4
3115 F5
3116 F6
6100 D9
6101 D9
6102 E6
6103 F6
6104 C1
6105 D3
6106 D4
6107 D4
6108 F3
6109 F6
6110 F5
7100 C6
7101 E1
I110 B2
I111 B2
I112 B2
I113 B1
I114 B2
I115 B3
I116 D2
I117 D2
I118 D2
I119 D1
I120 D2

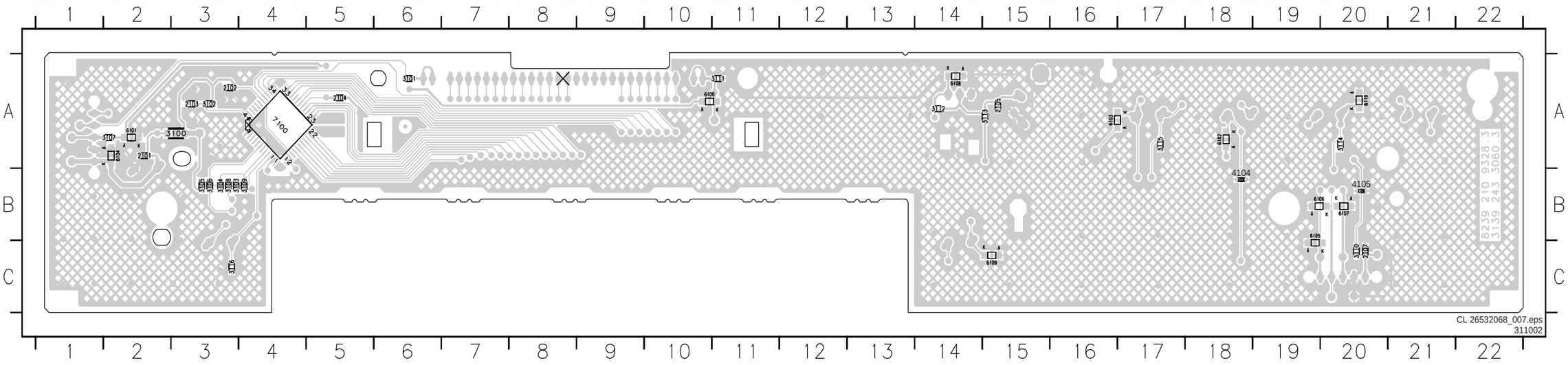
Layout Display Board (Top Side) - Bare Board 30603

1100 A15 1101 A21 1104 C3 1105 A3 1106 A5 1107 B9 1108 A2 1109 A6 1110 B20 1111 A8 2100 A21 2106 A8 7101 A9



Layout Display Board (BottomSide) - Bare Board 30603

2101 A2 2102 A3 2103 A3 2104 A5 2105 A15 2107 C20 3100 A3 3101 A6 3102 A3 3103 B3 3104 B3 3105 B3 3106 B3 3107 A2 3108 B3 3109 B4 3110 C20 3111 A11 3112 A14 3113 A15 3114 A20 3115 A17 3116 C3 4104 B18 4105 B20 6100 A10 6101 A2 6102 A18 6103 A16 6104 A2 6105 B19 6106 B19 6107 B20 6108 A14 6109 C15 6110 A20 7100 A4



MPEG Board 4428: Processor

M1 MPEG PROCESSOR

* For Dev Evaluation
From Emulator

TO/FROM ATAPI ENGINE

To 1104 of Display Board D

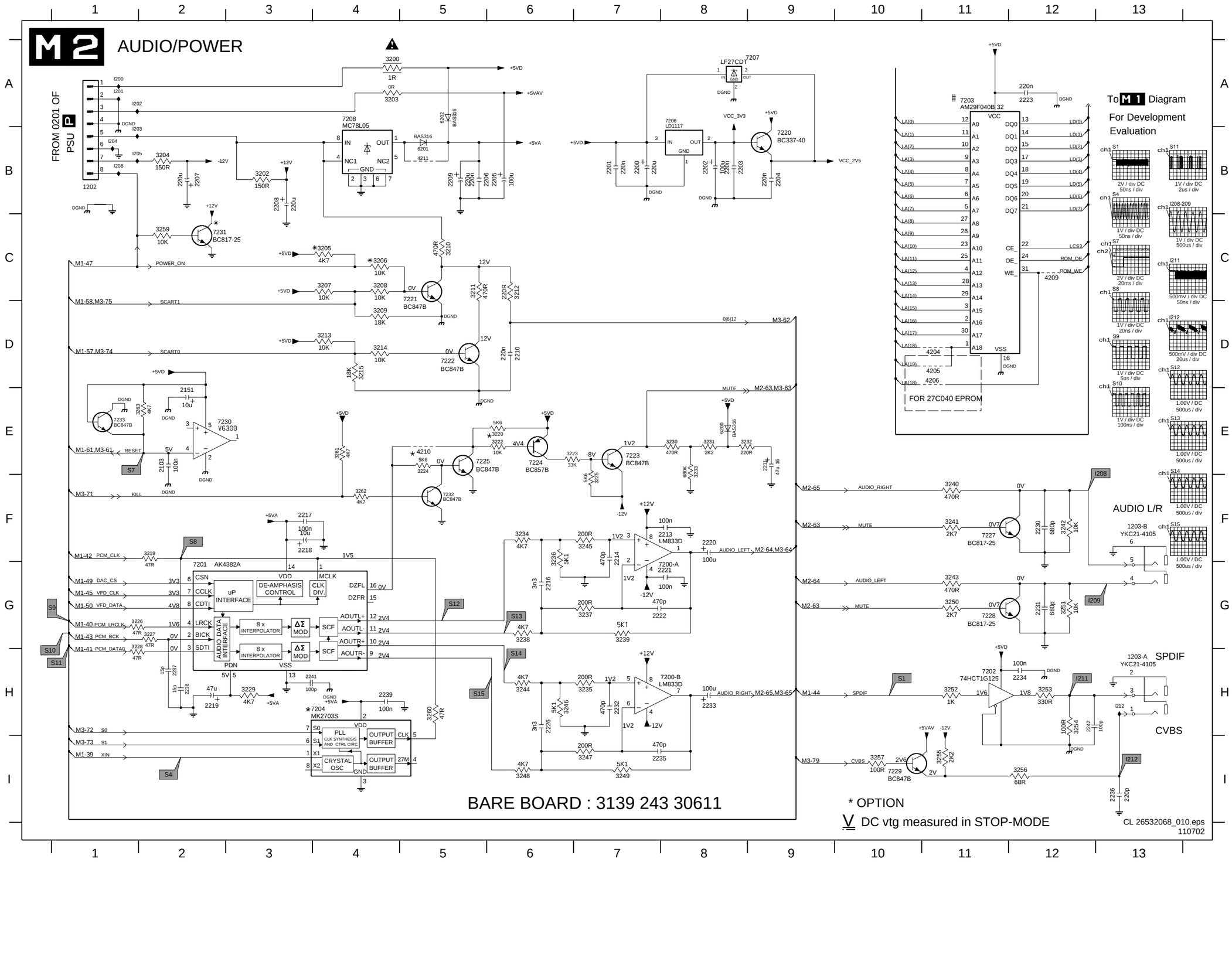
BARE BOARD : 3139 243 30611

* OPTION
V DC vtg measured in STOP-MODE
ONLY AVAILABLE ON ES60X8

CL 26532068_009.eps
080702

1148 H1
1149 H1
1150 B1
1151 B1
1152 G4
1153 D13
2100 C3
2101 G4
2102 G5
2104 H3
2105 H3
2106 H3
2107 H2
2108 H3
2109 E11
2110 H4
2111 H4
2112 H4
2113 H4
2114 H5
2115 H6
2116 H5
2117 H6
2118 H5
2119 H6
2120 G5
2121 H7
2122 H6
2123 I4
2124 I3
2125 I3
2126 I4
2127 I3
2128 I4
2129 I4
2130 A13
2131 I6
2132 I6
2133 I6
2134 I5
2135 I6
2136 I5
2137 I6
2138 B13
2139 G10
2140 D14
2141 D13
2142 F5
2143 G4
2144 D14
2145 G11
2146 C12
2147 C12
2148 D12
2149 D12
2150 G1
3100 C1
3101 C1
3102 C1
3103 C1
3104 C1
3105 C1
3106 D1
3107 D1
3108 D1
3109 D1
3110 D1
3111 D1
3112 D1
3113 E1
3114 E1
3115 E1
3116 F1
3117 F1
3118 F1
3119 F1
3120 G1
3121 G1
3122 G1
3123 G1
3124 G1
3125 G1
3126 H1
3127 H1
3128 I1
3130 E5
3131 E5
3132 E4
3133 F4
3134 F4
3135 F4
3137 I1
3138 I1
3139 I1
3140 F4
3141 G4
3142 F4
3143 F4
3144 G4
3145 B12
3146 C12
3147 D12
3148 D12
3150 D13
3151-D H6
3152-B G6
3153-D G7
3154-C H7
3154-D H7
3163 H7
3165 H7
3169 G9
3170 G9
3171 G9
3172 A13
3173 E1
3174 G4
4100 B8
4101 B8
4102 B3
4103 B9
4104 B10
4106 D10
4107 D10
4108 B3
4109 B3
4110 B1
5100 G10
5101 G5
5102 G4
5103 D14
5104 B10
5105 A11
7100 C3
7101 C10
7102 E12
7103 A12
7104 B13

MPEG Board 4428: Audio Power



1202 B1
1203-A H13
1203-B F13
2103 E2
2151 D2
2200 B7
2201 B7
2202 B8
2203 B8
2204 B9
2205 B6
2206 B5
2207 B2
2208 B3
2209 B5
2210 D6
2211 E9
2213 F8
2214 F7
2216 G6
2217 F3
2218 F3
2219 H2
2220 F8
2221 G8
2222 G7
2223 A12
2226 H6
2230 F12
2231 G12
2232 H7
2233 H8
2234 H12
2235 I7
2236 I13
2237 H2
2238 H2
2239 H4
2241 H3
2242 H12
3200 A4
3202 B3
3203 A4
3204 B2
3205 C4
3206 C4
3207 C4
3208 C4
3209 D4
3210 C5
3211 C5
3212 C6
3213 D4
3214 D4
3215 D4
3219 F2
3220 E6
3222 E6
3223 E6
3224 E5
3225 F7
3226 G1
3227 G2
3228 G1
3229 H3
3230 E8
3231 E8
3232 E8
3233 E8
3234 F6
3235 H7
3236 F6
3237 G7
3238 G6
3239 G7
3240 F11
3241 F11
3242 F12
3243 G11
3244 H6
3245 F7
3246 H6
3247 I7
3248 I6
3249 I7
3250 G11
3251 G12
3252 H11
3253 H12
3254 H12
3255 I11
3256 I12
3257 I10
3259 C2
3260 H5
3261 E4
3262 F4
3263 E2
4204 D11
4205 D11
4206 D11
4209 C12
4210 E5
4211 B5
6200 E8
6201 B5
6202 A5
7200-A G7
7200-B H7
7201 G2
7202 H11
7203 A11
7204 H3
7206 A8
7207 A9
7208 A4
7220 B9
7221 D5
7222 D5
7223 E7
7224 E6
7225 E5
7227 F11
7228 G11
7229 I10
7230 E2
7231 C2
7232 F5
7233 E1
I200 A1
I201 A1
I202 A1
I203 B1
I204 B1
I205 B1
I206 B1
I207 F13
I208 F13
I209 G13
I210 H13
I211 H13
I212 H13

MPEG Board 4428: Video & Scart

M3 VIDEO & SCART

I300-301: 1V / div DC, 500us / div
I303: 500mV / div DC, 20us / div
I304: 500mV / div DC, 20us / div
I305: 500mV / div DC, 20us / div
I307: 500mV / div DC, 20us / div
S16: 2V / div DC, 10ms / div
S17: 200mV / div DC, 20us / div
S18: 200mV / div DC, 20us / div
S19: 200mV / div DC, 20us / div
S20: 200mV / div DC, 20us / div
S21: 500mV / div DC, 20us / div
S5: 1V / div DC, 50ns / div

SCART
1300
I300 SCART_R
I301 SCART_L
I302 BLUE
I303 0|6|12
I304 GREEN
I305 RED
I306 FBOUT
I307 CVBS

SCART_R
SCART_L
AUDIO_RIGHT
AUDIO_LEFT
MUTE
0|6|12
B
CVBS
R
G

7300-A LM833D
7300-B LM833D
+12V
-12V

7320 BC817-25
7321 BC817-25
7322-A BC847BPN
7322-B BC847BPN
7324 BC847B
7325 BC847B
7326 BC847B
7327 BC847B
7305-A BC847BPN
7305-B BC847BPN
7306-A BC847BPN
7306-B BC847BPN
7307-A BC847BPN
7307-B BC847BPN
7308-A BC847BPN
7308-B BC847BPN

BZX284-C15

For Develpoment Evaluation
1301 SCL M1-51, +5VD, SDA M1-52

7301 CS4954
INT, VSYNC_, HSYNC_CB_, FIELD|CB, V7, V6, V5, V4, V3, V2, V1, V0
TEST, XTAL_OUT, XTAL_IN, PADDR, VDD, GNDD, PDAT7, PDAT6, PDAT5, PDAT4, PDAT3, PDAT2
Y, C, VAA_3, GNDA_3, CVBS, B, GNDA_2, VAA_2, G, R, VREF, ISET
PDAT1, PDAT0, RD_, WR_, CLK, TTXDAT, TTXRQ, SDA, SCL, RESET_, GNDA_1, VAA_1

S16 VSYNC, S17 HSYNC, S5 VIDEO_CLK
SCART1, SCART0
KILL, S1, S0
TTXDAT, TTXRQ, SDA, SCL, RESET

R_OUT, G_OUT, B_OUT, CVBS_OUT
S18, S19, S20, S21

* For ES4428

ONLY AVAILABLE ON ES60X8
* OPTION
V DC vtg measured in STOP-MODE

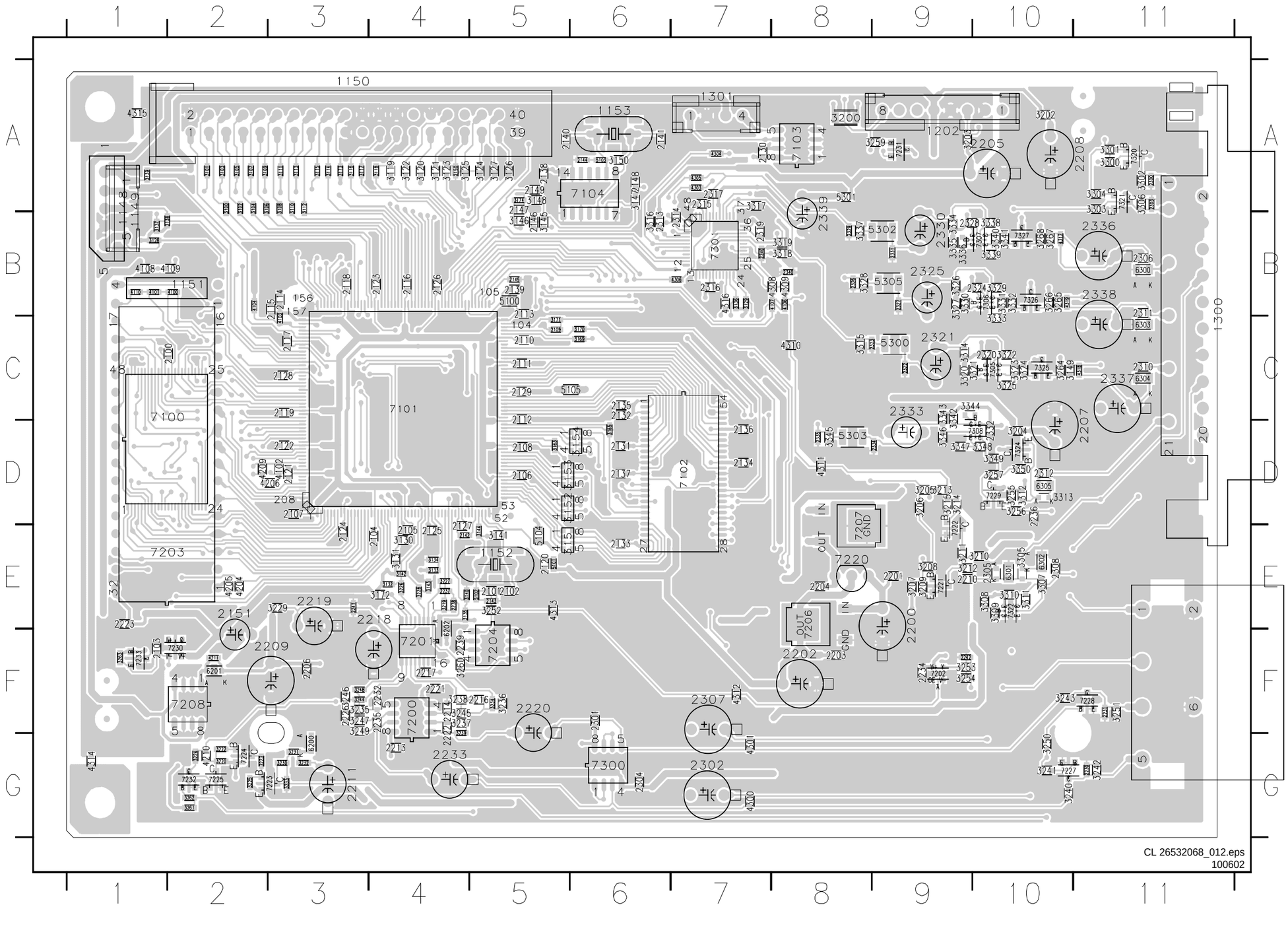
BARE BOARD : 3139 243 30611

CL 26532068_011.eps
080702

1300 A13	4317 B12	3129 H2	3316 F5
1301 D1	4318 C12	3136 H2	3317 H6
2240 I6	4319 C12	3149 E13	3318 I4
2300 A9	5300 E9	3264 F12	3319 I4
2301 B4	5301 F6	3265 G13	3320 D11
2302 B5	5302 H9	3266 G12	3321 E11
2303 A9	5303 I9	3267 H13	3322 E10
2304 C4	5305 F9	3268 H12	3323 E11
2305 B10	6300 A12	3300 A8	3324 E12
2306 A12	6301 B11	3301 A8	3325 E10
2307 B7	6302 B12	3302 A10	3326 F10
2308 B11	6303 B12	3303 A8	3327 F10
2310 C11	6304 C12	3304 A8	3328 F8
2311 B12	6305 D12	3305 A12	3329 F10
2312 D12	7300-A B4	3306 A10	3330 F11
2313 F5	7300-B B6	3307 B9	3331 G11
2314 F5	7301 F3	3308 C10	3332 G12
2315 G6	7305-A E11	3309 C9	3333 G10
2316 G2	7305-B E12	3310 B11	3334 G10
2317 G6	7306-A F10	3311 C11	3335 G10
2319 I5	7306-B F12	3312 C9	3336 G11
2320 D10	7307-A H10	3313 C10	3337 H8
2321 E10	7307-B G12	3314 D10	3338 H10
2322 E9	7308-A I10	3315 E8	3339 H10
2323 E8	7308-B I12	3316 F5	3340 H11
2324 F10	7320 A8	3317 H6	3341 H12
2325 F10	7321 A8	3318 I4	3342 I10
2326 F8	7322-A B9	3319 I4	3343 I10
2327 F9	7322-B C10	3320 D11	3344 I11
2328 G10	7324 C8	3321 E11	3345 I8
2329 H8	7325 E13	3322 E10	3346 I10
2330 H10	7326 G13	3323 E11	3347 I10
2331 H9	7327 H13	3324 E12	3348 I11
2332 H10	I300 A13	3325 E10	3349 I12
2333 I10	I301 A13	3326 F10	3350 C8
2334 I9	I302 A12	3327 F10	4300 A4
2335 I8	I303 B12	3328 F8	4301 A6
2336 B12	I304 B12	3329 F10	4303 E7
2337 C12	I305 C12	3330 F11	4304 E7
2338 C12	I306 C12	3331 G11	4305 E8
2339 F6	I307 C11	3332 G12	4306 E8
2340 I5		3333 G10	4308 I3
		3334 G10	4309 I3
		3335 G10	4310 I6
		3336 G11	4311 I6
		3337 H8	4312 I6
		3338 H10	4313 I6
		3339 H10	4314 H6
		3340 H11	4315 H7
		3341 H12	4316 H2
		3342 I10	
		3343 I10	
		3344 I11	
		3345 I8	
		3346 I10	
		3347 I10	
		3348 I11	
		3349 I12	
		3350 C8	
		4300 A4	
		4301 A6	
		4303 E7	
		4304 E7	
		4305 E8	
		4306 E8	
		4308 I3	
		4309 I3	
		4310 I6	
		4311 I6	
		4312 I6	
		4313 I6	
		4314 H6	
		4315 H7	
		4316 H2	

Layout MPEG Board 4428 (Top Side)

1148 A1
1149 A1
1150 A3
1151 B1
1152 E5
1153 A6
1202 A9
1300 B11
1301 A7
2100 C2
2101 E5
2102 E5
2103 F1
2104 E4
2105 E4
2106 D5
2107 D3
2108 D5
2109 C5
2110 C5
2111 C5
2112 C5
2113 B5
2114 B3
2115 B3
2116 B4
2117 C3
2118 B3
2119 C3
2120 E5
2121 D3
2122 D3
2123 B4
2124 E3
2125 E4
2126 B4
2127 E4
2128 C3
2129 C5
2130 A7
2131 D6
2132 C6
2133 E6
2134 D7
2135 C6
2136 D7
2137 D6
2138 A5
2139 B5
2140 A5
2141 A6
2142 E4
2143 E5
2144 A6
2145 B5
2146 B5
2147 A5
2148 A6
2149 A5
2150 A4
2151 E2
2200 E9
2201 E9
2202 F8
2203 F8
2204 E8
2205 A10
2206 F3
2207 D11
2208 A11
2209 F3
2210 E9
2211 G3
2213 G4
2214 F4
2216 F5
2217 F4
2218 F4
2219 E3
2220 F5
2221 F4
2222 F4
2223 E1
2226 F3
2230 G11
2231 F11
2232 F4
2233 G4
2234 F9
2235 F4
2236 D10
2237 E4
2238 E4
2239 F4
2240 B7
2241 E3
2242 F9
2300 A11
2301 F6
2302 G7
2303 A11
2304 G6
2305 E10
2306 B11
2307 F7
2308 E10
2310 C11
2311 B11
2312 D10
2313 B6
2314 B7
2315 A7
2316 B7
2317 A7
2319 B7
2320 C10
2321 C9
2322 C9
2323 C8
2324 B10
2325 B9
2326 B8
2327 B9
2328 B9
2329 B8
2330 B9
2331 B9
2332 D10
2333 C9
2334 D9
2335 D8
2336 B11
2337 C11
2338 B11
2339 B8
2340 B8
3100 A2
3101 A2
3102 A2
3103 A2
3104 A2
3105 A2
3106 A2
3107 A2
3108 A3
3109 A2
3110 A3
3111 A3
3112 A3
3113 A3
3114 A3
3115 A3
3116 A3
3117 A3
3118 A4
3119 A4
3120 A4
3121 A4
3122 A4
3123 A4
3124 A5
3125 A4
3126 A5
3127 A5
3128 B1
3129 B7
3130 E4
3131 E4
3132 E4
3133 E4
3134 E4
3135 E4
3136 B7
3137 B1
3138 B1
3139 A1
3140 E4
3141 E5
3142 E4
3143 E4
3144 E5
3145 B5
3146 B5
3147 A6
3148 A5
3149 C10
3150 A6
3151 E5
3152 D5
3153 D5
3154 D6
3163 D5
3165 D6
3169 C6
3170 C6
3171 C5
3172 E4
3173 A3
3174 A5
3200 A8
3202 A10
3203 A9
3204 D10
3205 D9
3206 D9
3207 E9
3208 E9
3209 E9
3210 E10
3211 E9
3212 E9
3213 D9
3214 D9
3215 D9
3219 E4
3220 G2
3222 G2
3223 G2
3224 G2
3225 G2
3226 E4
3227 E4
3228 E4
3229 E3
3230 G3
3231 G3
3232 G3
3233 G3
3234 F5
3235 F3
3236 F5
3237 F4
3238 F4
3239 F4
3240 G10
3241 G10
3242 G11
3243 F10
3244 F3
3245 F4
3246 F3
3247 F3
3248 F3
3249 F3
3250 G10
3251 F11
3252 E5
3253 F9
3254 F9
3255 D10
3256 D10
3257 D10
3259 A9
3260 F4
3261 G2
3262 G2
3263 F1
3264 C10
3265 B10
3266 B10
3267 B10
3268 B10
3300 A11
3301 A11
3302 A11
3303 A11
3304 A11
3305 E10
3306 A11
3307 E10
3308 E10
3309 E10
3310 E10
3311 E10
3312 D10
3313 D10
3314 C9
3315 C8
3316 B6
3317 A7
3318 B8
3319 B8
3320 C9
3321 C10
3322 C10
3323 C10
3324 B9
3325 C10
3326 B9
3327 B9
3328 B8
3329 B10
3330 B9
3331 B10
3332 B10
3333 C10
3334 B9
3335 B9
3336 B9
3337 B8
3338 B10
3339 B10
3340 B10
3341 B10
3342 C9
3343 C9
3344 C9
3345 D8
3346 D9
3347 D9
3348 D10
3349 D10
3350 D10
4100 B2
4101 B1
4102 D3
4103 C3
4104 B2
4106 B8
4107 B8
4108 B1
4109 B2
4110 B1
4204 E2
4205 E2
4206 D3
4209 D2
4210 G2
4211 F2
4300 G7
4301 G7
4303 A7
4304 A7
4305 A7
4306 B7
4308 B8
4309 B8
4310 C8
4311 D8
4312 F7
4313 E5
4314 G1
4315 A1
4316 B7
4317 B10
4318 C11
4319 B10
5100 B5
5101 E5
5102 E5
5103 A6
5104 E5
5105 C6
5300 C9
5301 A8
5302 B9
5303 D8
5305 B9
6200 G3
6201 F2
6202 E4
6300 B11
6301 E10
6302 E10
6303 C11
6304 C11
6305 D10
7100 D1
7101 C4
7102 D7
7103 A8
7104 A6
7200 F4
7201 F4
7202 F9
7203 D1
7204 F5
7206 E8
7207 E8
7208 F2
7220 E8
7221 E9
7222 E9
7223 G3
7224 G2
7225 G2
7227 G10
7228 F11
7229 D10
7230 F2
7231 A9
7232 G2
7233 F1
7300 G6
7301 B7
7305 C10



MPEG Board 6018: Processor

M 1 MPEG PROCESSOR

* For Dev Evaluation
From Emulator

TO/FROM ATAPI ENGINE

To 1104 of Display Board

7100 M29W400BT-55N1

7101 ESS6018F

7102 MT48LC4M16A2TG

7103 M24C01

BANK0 ROW-ADDR LATCH & DECODER

BANK0 MEMORY ARRAY (4,096x256x16)

CTRL LOGIC

COMMAND DECODE

MODE REG

REFRESH COUNTER

ROW ADDR MUX

BANK CTRL LOGIC

COLUMN ADDR COUNTER/ LATCH

COLUMN DEDCODER

ADDRESS REGISTER

SENSE AMPLIFIERS

I/O GATING DQM DATA LOGIC READ DATA LATCH WRITE DRIVERS

DATA OUTPUT REGISTER

DATA INPUT REGISTER

* OPTION

V DC vtg measured in STOP-MODE

BARE BOARD 3139 243 30661

CL 26532068_028.eps
311002

1148 H1
1149 H1
1150 B1
1151 B1
1152 G4
2100 C3
2101 H4
2102 H5
2104 H3
2105 H3
2106 H3
2107 H2
2108 H3
2109 E12
2110 H4
2111 H4
2112 H4
2113 H4
2114 H5
2115 H6
2116 H5
2117 H6
2118 H5
2119 H6
2120 G5
2121 H7
2122 H6
2123 I4
2124 I3
2125 I3
2126 I4
2127 I3
2128 I4
2129 I4
2130 A13
2131 I6
2132 I6
2133 I6
2134 I5
2135 I6
2137 I6
2139 G10
2142 F5
2143 H4
2145 G11
2150 G1
2313 G10
3100 C1
3101 C1
3102 C1
3103 C1
3104 C1
3105 C1
3106 D1
3107 D1
3108 D1
3109 D1
3110 D1
3111 D1
3112 D1
3113 E1
3114 E1
3115 E1
3116 F1
3117 F1
3118 F1
3119 F1
3120 G1
3121 G1
3122 G1
3123 G1
3124 G1
3125 G1
3126 H1
3127 H1
3128 I2
3130 E5
3131 E5
3132 F4
3133 F4
3134 F4
3135 F5
3137 I1
3138 I1
3139 I1
3140 F4
3141 G4
3142 F4
3143 F4
3144 G4
3151-D H6
3152-B G6
3153-D G7
3154-C H7
3154-D H7
3163 H7
3165 H7
3169 G9
3170 G9
3171 G9
3172 A13
3173 E1
3175 A12
3176 B12
3177 G5
4100 B8
4101 B8
4102 A3
4108 B3
4109 B3
4110 B1
5100 G10
5101 G5
5102 G4
5104 A11

MPEG Board 6018: Audio Power

M2 AUDIO/POWER

FROM 0201 OF PSU P

1202 I200 I201 I202 I203 I204 I205 I206

3200 0R +5VD
3203 0R +5VAV
7208 MC78L05 +5VA
BAS316 6202 6201 4211
2243 100n 2244 100n
2209 220u 2220n 2206 2205 100u

-12V 3204 22R 220u 2207
+12V 3202 22R 2208 220u
3259 10K 7231 BC817-25

M1-47 POWER_ON
M1-58,M3-75 SCART1
M1-57,M3-74 SCART0

+5VD 3205 4K7 3206 10K 470R 3210 12V
3207 10K 3208 10K 0V 7221 BC847B 3211 470R 220R 3212
3209 18K DGND
3213 10K 3214 10K 0V 7222 BC847B 12V 220n 2210
18K 3215

0|6|12 M3-62

+5VD 2151 10u 16V 3263 4K7 7233 BC847B DGND
7230 V6300 5V
M1-61,M3-61 RESET S7 2103 1n0 DGND
M1-71 KILL 3262 4K7

+5VD 3261 4K7 4210 5K6 3224 0V 7225 BC847B
5K6 3222 10K 4V4 7224 BC857B 3223 33K -8V 7223 BC847B 1V2
3230 470R 3231 2K2 3232 220R 680K 3233 6200 BAS316 2211 47u 16
-12V 4K7 BC857B 7234 5K6 3225 3270 2K7

+5VA 2217 100n 10u 2218
M1-42 PCM_CLK 3219 47R
M1-49 DAC_CS
M1-45 VFD_CLK
M1-50 VFD_DATA
M1-40 PCM_LRCLK 3226 47R
M1-43 PCM_BCK 3227 47R
M1-41 PCM_DATA0 3228 47R

7201 AK4382A
CSN CCLK CDTI LRCK BICK SDTI
uP INTERFACE
DE-AMPHASIS CONTROL
CLK DIV.
AUDIO DATA INTERFACE
8 x INTERPOLATOR ΔΣ MOD SCF
VDD MCLK DZFL DZFR AOUTL+ AOUTL- AOUTR+ AOUTR- PDN VSS
15p 2237 15p 2238 47u 2219 3229 4K7 +5VA 2241 100p DGND +5VA 2239 100n

7204 MK2703S
S0 S1 X1 X2 VDD PLL CLK SYNTHESIS AND CTRL CIRC. CRYSTAL OSC OUTPUT BUFFER CLK 27M GND
M1-72 S0
M1-73 S1
M1-39 CLK_27M
3260 47R

S8 S9 S10 S11 S12 S14 S15 S1 S4 S7

7200-A LM833D 2213 100n 2221 100n 1V2 -12V +12V
3234 4K7 200R 3245 3236 5K1 470p 2214 3n3 2216 200R 3237 470p 2222 5K1 3239
2220 100u AUDIO_LEFT M2-64,M3-64

7200-B LM833D 2212 100n 2222 100n 1V2 -12V +12V
4K7 3244 200R 3235 5K1 3246 470p 2232 3n3 2226 200R 3247 470p 2235 5K1 3249
4K7 3248
100u AUDIO_RIGHT M2-65,M3-65 2233

LF27CDT 7207 IN GND OUT DGND
7206 LD1117 IN OUT GND 2201 220n 2200 220u DGND
VCC_3V3 +5VD 7220 BC337-40 2202 100u 220n 2203 220n 2204 DGND
VCC_2V5

+5VD 220n 2223 DGND
# 7203 AM29F040B 32 VCC
LA(0) LA(1) LA(2) LA(3) LA(4) LA(5) LA(6) LA(7) LA(8) LA(9) LA(10) LA(11) LA(12) LA(13) LA(14) LA(15) LA(16) LA(17) LA(18) LA(19) LA(18)
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15 A16 A17 A18
DQ0 DQ1 DQ2 DQ3 DQ4 DQ5 DQ6 DQ7
LD(0) LD(1) LD(2) LD(3) LD(4) LD(5) LD(6) LD(7)
CE_ OE_ WE_ LCS3 ROM_OE ROM_WE
4204 4205 4206 4209
VSS 16 DGND
FOR 27C040 EPROM

To M1 Diagram
For Development Evaluation

S1 S11 S4 I208-209 S7 I211 S8 I212 S9 S12 S10 S13

MUTE M2-63,M3-63
M2-65 AUDIO_RIGHT 3240 470R 0V I208 AUDIO L/R
M2-63 MUTE 3241 2K7 0V7 7227 BC817-25 2230 680p 3242 10K
1203-B YKC21-4105 I207 I208 I209 S14
M2-64 AUDIO_LEFT 3243 470R 0V
M2-63 MUTE 3250 2K7 0V7 7228 BC817-25 2231 680p 3251 10K S15

1203-A SPDIF YKC21-4105 I210 I211 I212
M1-44 SPDIF 3252 1K 1V6 7202 74HCT1G125 1V8 3253 330R 100R 3254 242 100p DGND
CVBS
M3-79 CVBS 3257 100R 2V6 7229 BC847B 3255 2K2 2V 3256 68R 2236 220p

+5VD 100n 2234 DGND

1.00V / DC 500us / div
1V / div DC 50ns / div
1V / div DC 500us / div
2V / div DC 20ms / div
500mV / div DC 50ns / div
1V / div DC 20ns / div
500mV / div DC 20us / div
1V / div DC 5us / div
1V / div DC 100ns / div

BARE BOARD 3139 243 30661

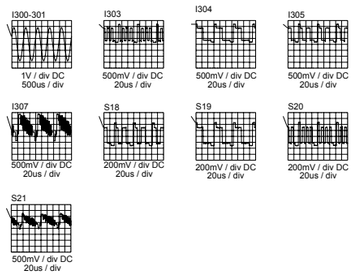
* OPTION
V DC vtg measured in STOP-MODE

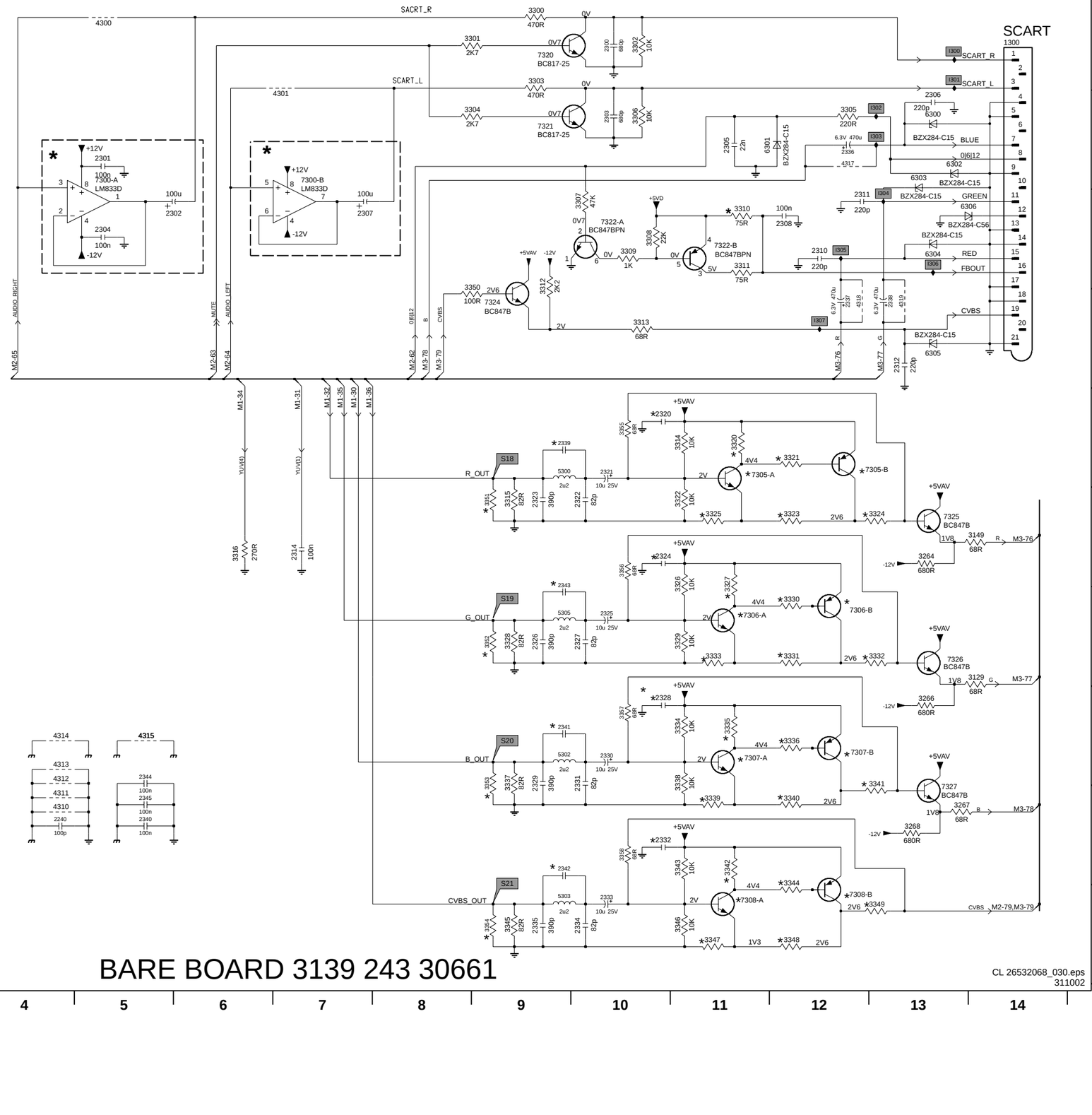
CL 26532068_029.eps
311002

1202 B1
1203-A H13
1203-B F13
2103 E2
2151 E2
2200 B7
2201 B7
2202 B8
2203 B8
2204 B9
2205 B6
2206 B5
2207 B2
2208 B3
2209 B5
2210 D6
2211 E9
2213 F8
2214 F7
2216 G6
2217 F3
2218 F3
2219 H2
2220 F8
2221 G8
2222 G7
2223 A12
2226 H6
2230 F12
2231 G12
2232 H7
2233 H8
2234 H12
2235 I7
2236 I13
2237 H2
2238 H2
2239 H4
2241 H3
2242 H12
2243 A4
2244 A5
3136 F6
3200 A4
3202 B3
3203 A4
3204 B2
3205 C4
3206 C4
3207 C4
3208 C4
3209 D4
3210 C5
3211 C5
3212 C6
3213 D4
3214 D4
3215 D4
3219 F2
3220 E6
3222 E6
3223 E6
3224 E5
3225 F7
3226 G1
3227 G2
3228 H1
3229 H3
3230 E8
3231 E8
3232 E8
3233 E8
3234 F6
3235 H7
3236 F6
3237 G7
3238 G6
3239 G7
3240 F11
3241 F11
3242 F12
3243 G11
3244 H6
3245 F7
3246 H6
3247 I7
3248 I6
3249 I7
3250 G11
3251 G12
3252 H11
3253 H12
3254 H12
3255 I11
3256 I12
3257 I10
3259 C2
3260 H5
3261 E4
3262 F4
3263 E2
3270 F6
4204 D11
4205 D11
4206 D11
4209 C12
4210 E5
4211 B5
6200 E8
6201 B5
6202 A5
7200-A G7
7200-B H7
7201 G2
7202 H11
7203 A11
7204 H3
7206 A8
7207 A9
7208 A4
7220 B9
7221 D5
7222 D5
7223 E7
7224 E6
7225 E5
7227 F11
7228 G11
7229 I10
7230 E2
7231 C2
7232 F5
7233 E1
7234 F6
I200 A1
I201 A1
I202 A1
I203 B1
I204 B1
I205 B1
I206 B1
I207 F13
I208 F13
I209 G13
I210 H13
I211 H13
I212 H13

MPEG Board 6018: Video & Scart

VIDEO & SCART





* OPTION

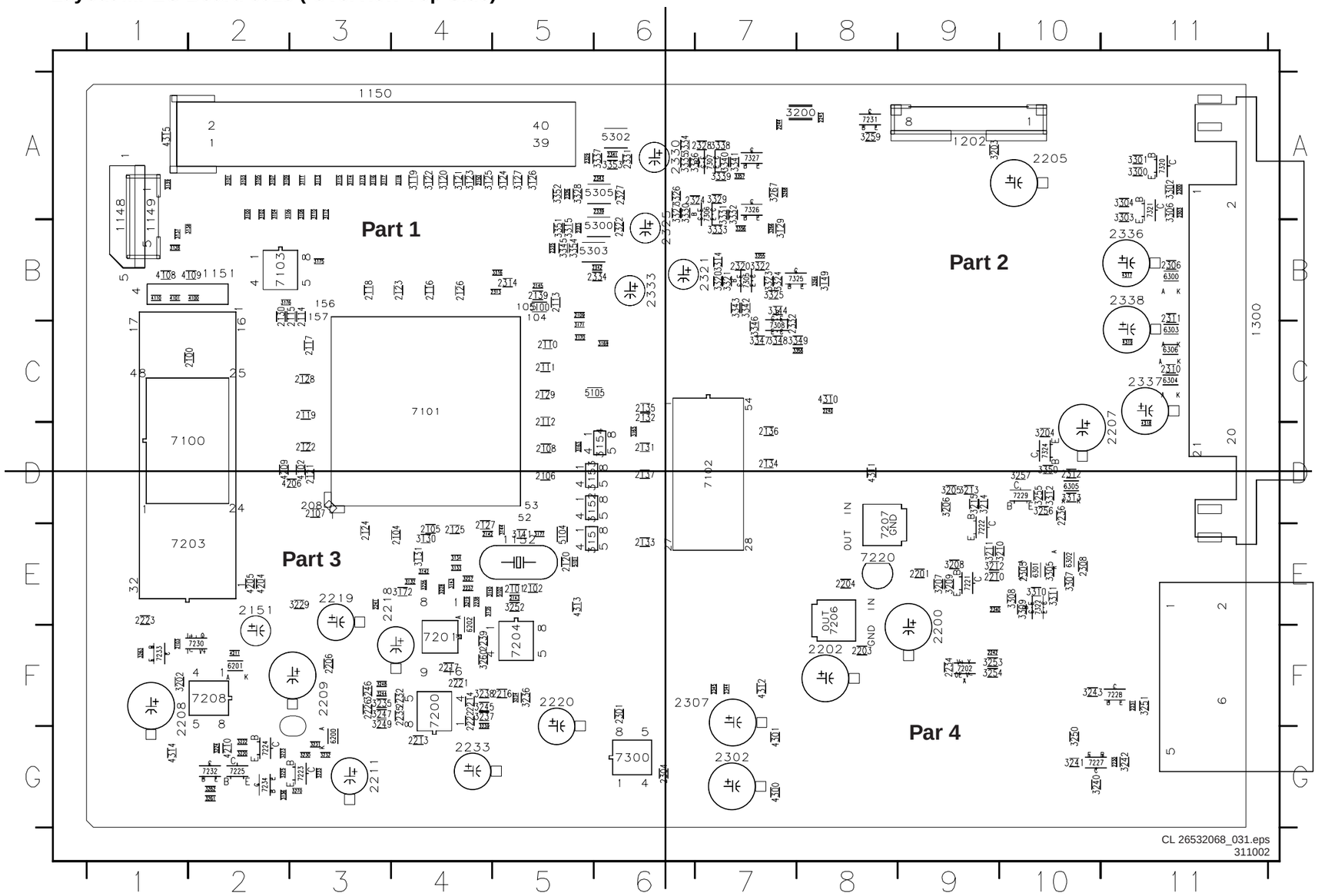
V DC vtg measured in STOP-MODE

BARE BOARD 3139 243 30661

CL 26532068_030.eps
311002

1300 A14
2240 I4
2300 A10
2301 B5
2302 C6
2303 B10
2304 C5
2305 B11
2306 B13
2307 C7
2308 C12
2310 C12
2311 C12
2312 D13
2314 F7
2320 E10
2321 E10
2322 F10
2323 F9
2324 F10
2325 G10
2326 G9
2327 G10
2328 H10
2329 H9
2330 H10
2331 H10
2332 I10
2333 J10
2334 J10
2335 J9
2336 B12
2337 D12
2338 D13
2339 E9
2340 I5
2341 H9
2342 I9
2343 G9
2344 H5
2345 I5
3129 G14
3149 F14
3264 F13
3266 H13
3267 I13
3268 I13
3300 A9
3301 A9
3302 A10
3303 A9
3304 B9
3305 B12
3306 B10
3307 C10
3308 C10
3309 C10
3310 C11
3311 C11
3312 C9
3313 D10
3314 E11
3315 F9
3316 F6
3320 E11
3321 E12
3322 F11
3323 F12
3324 F13
3325 F11
3326 F11
3327 F11
3328 G9
3329 G11
3330 G12
3331 G12
3332 G13
3333 G11
3334 H11
3335 H11
3336 H12
3337 H9
3338 H11
3339 I11
3340 I12
3341 I13
3342 I11
3343 I11
3344 J12
3345 J9
3346 J11
3347 J11
3348 J12
3349 J13
3350 D9
3351 F9
3352 G9
3353 H9
3354 J9
3355 E10
3356 F10
3357 H10
3358 I10
4300 A5
4301 B7
4310 I4
4311 I4
4312 H4
4313 H4
4314 H4
4315 H5
4317 B12
4318 D12
4319 D13
5300 E9
5302 H9
5303 J9
5305 G9
6300 B13
6301 B12
6302 B13
6303 B13
6304 C13
6305 D13
6306 C14
7300-A B5
7300-B B7
7305-A E11
7305-B E12
7306-A G11
7306-B G12
7307-A H11
7307-B H12
7308-A J11
7308-B J12
7320 A9
7321 B9
7322-A C10
7322-B C11
7324 D9
7325 F13
7326 G13
7327 I13
I300 A13
I301 A13
I302 B13
I303 B13
I304 C13
I305 C12
I306 C13
I307 D12

Layout MPEG Board 6018 (Overview Top Side)



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1149	A1	2218	E3	3104	A2	3211	E9	3313	D10	5100	B5				
1150	A3	2219	E3	3105	A2	3212	E9	3314	B7	5101	E5				
1151	B2	2220	F5	3106	A2	3213	D9	3315	B5	5102	E5				
1152	E5	2221	F4	3107	A2	3214	D9	3316	B5	5104	E5				
1202	A9	2222	F4	3108	A3	3215	D9	3320	B7	5105	C6				
1300	B11	2223	E1	3109	A2	3219	E4	3321	B7	5300	B6				
2100	C2	2226	F3	3110	A3	3220	G2	3322	B7	5302	A6				
2101	E5	2230	G11	3111	A3	3222	G2	3323	B7	5303	B5				
2102	E5	2231	F11	3112	A3	3223	G2	3324	B7	5305	A6				
2103	F1	2232	F4	3113	A3	3224	G2	3325	B7	6200	G3				
2104	E4	2233	G4	3114	A3	3225	G2	3326	A6	6201	F2				
2105	E4	2234	F9	3115	A3	3226	E4	3327	A6	6202	E4				
2106	D5	2235	F4	3116	A3	3227	E4	3328	A5	6300	B11				
2107	D3	2236	D10	3117	A3	3228	E4	3329	A7	6301	E10				
2108	D5	2237	E4	3118	A4	3229	E3	3330	A6	6302	E10				
2109	B5	2238	E4	3119	A4	3230	G3	3331	A7	6303	C11				
2110	C5	2239	F4	3120	A4	3231	G3	3332	A7	6304	C11				
2111	C5	2240	C8	3121	A4	3232	G3	3333	B7	6305	D10				
2112	C5	2241	E3	3122	A4	3233	G3	3334	A6	6306	C11				
2113	B5	2242	F9	3123	A4	3234	F5	3335	A6	7100	D1				
2114	B3	2243	A8	3124	A5	3235	F3	3336	A6	7101	C4				
2115	B3	2244	A7	3125	A4	3236	F5	3337	A6	7102	D7				
2116	B4	2300	A11	3126	A5	3237	F4	3338	A7	7103	B2				
2117	C3	2301	F6	3127	A5	3238	F4	3339	A7	7200	F4				
2118	B3	2302	G7	3128	B1	3239	F4	3340	A7	7201	F4				
2119	C3	2303	A11	3129	B7	3240	G10	3341	A7	7202	F9				
2120	E5	2304	G6	3130	E4	3241	G10	3342	B7	7203	E1				
2121	D3	2305	E10	3131	E4	3242	G11	3343	B7	7204	F5				
2122	D3	2306	B11	3132	E4	3243	F10	3344	B7	7206	E8				
2123	B4	2307	F6	3133	E4	3244	F3	3345	B5	7207	E8				
2124	E3	2308	E10	3134	E4	3245	F4	3346	C7	7208	F2				
2125	E4	2310	C11	3135	E4	3246	F3	3347	C7	7220	E8				
2126	B4	2311	B11	3136	G2	3247	F3	3348	C7	7221	E9				
2127	E4	2312	D10	3137	B1	3248	F3	3349	C8	7222	E9				
2128	C3	2313	B5	3138	B1	3249	F3	3350	D10	7223	G3				
2129	C5	2314	B5	3139	A1	3250	G10	3351	B5	7224	G2				
2130	B2	2320	B7	3140	E4	3251	F11	3352	A5	7225	G2				
2131	D6	2321	B7	3141	E5	3252	E5	3353	A6	7227	G10				
2132	C6	2322	B6	3142	E4	3253	F9	3354	B5	7228	F11				
2133	E6	2323	B5	3143	E4	3254	F9	3355	B7	7229	D10				
2134	D7	2324	A6	3144	E5	3255	D10	3356	B7	7230	F2				
2135	C6	2325	B6	3149	B8	3256	D10	3357	A7	7231	A8				
2136	D7	2326	A5	3151	E5	3257	D10	3358	C8	7232	G2				
2137	D6	2327	A6	3152	D5	3259	A8	4100	B2	7233	F1				
2139	B5	2328	A7	3153	D5	3260	F4	4101	B1	7234	G2				
2142	E4	2329	A5	3154	D6	3261	G2	4102	D3	7300	G6				
2143	E5	2330	A6	3163	D5	3262	G2	4108	B1	7305	B7				
2145	B5	2331	A6	3165	D6	3263	F1	4109	B2	7306	A7				
2150	A4	2332	C7	3169	C6	3264	B8	4110	B1	7307	A7				
2151	E2	2333	B6	3170	C5	3266	B7	4204	E2	7308	C7				
2200	F9	2334	B6	3171	C5	3267	A7	4205	E2	7320	A11				
2201	E9	2335	B5	3172	E4	3268	A7	4206	D3	7321	A11				
2202	F8	2336	B11	3173	A3	3270	G3	4209	D2	7322	E10				
2203	F8	2337	C11	3175	B3	3300	A11	4210	G2	7324	D10				
2204	E8	2338	B11	3176	B2	3301	A11	4211	F2	7325	B7				
2205	A10	2339	A6	3177	E5	3302	A11	4300	G7	7326	A7				
2206	F3	2340	E9	3200	A8	3303	A11	4301	G7	7327	A7				
2207	D11	2341	A6	3202	F1	3304	A11	4310	C8						
2208	F1	2342	B6	3203	A9	3305	E10	4311	D8						
2209	F3	2343	A6	3204	D10	3306	A11	4312	F7						
2210	E9	2344	F7	3205	D9	3307	E10	4313	E5						
2211	G3	2345	F7	3206	D9	3308	E10	4314	G1						
2213	G4	3100	A2	3207	E9	3309	E10	4315	A1						
2214	F4	3101	A2	3208	E9	3310	E10	4317	B11						
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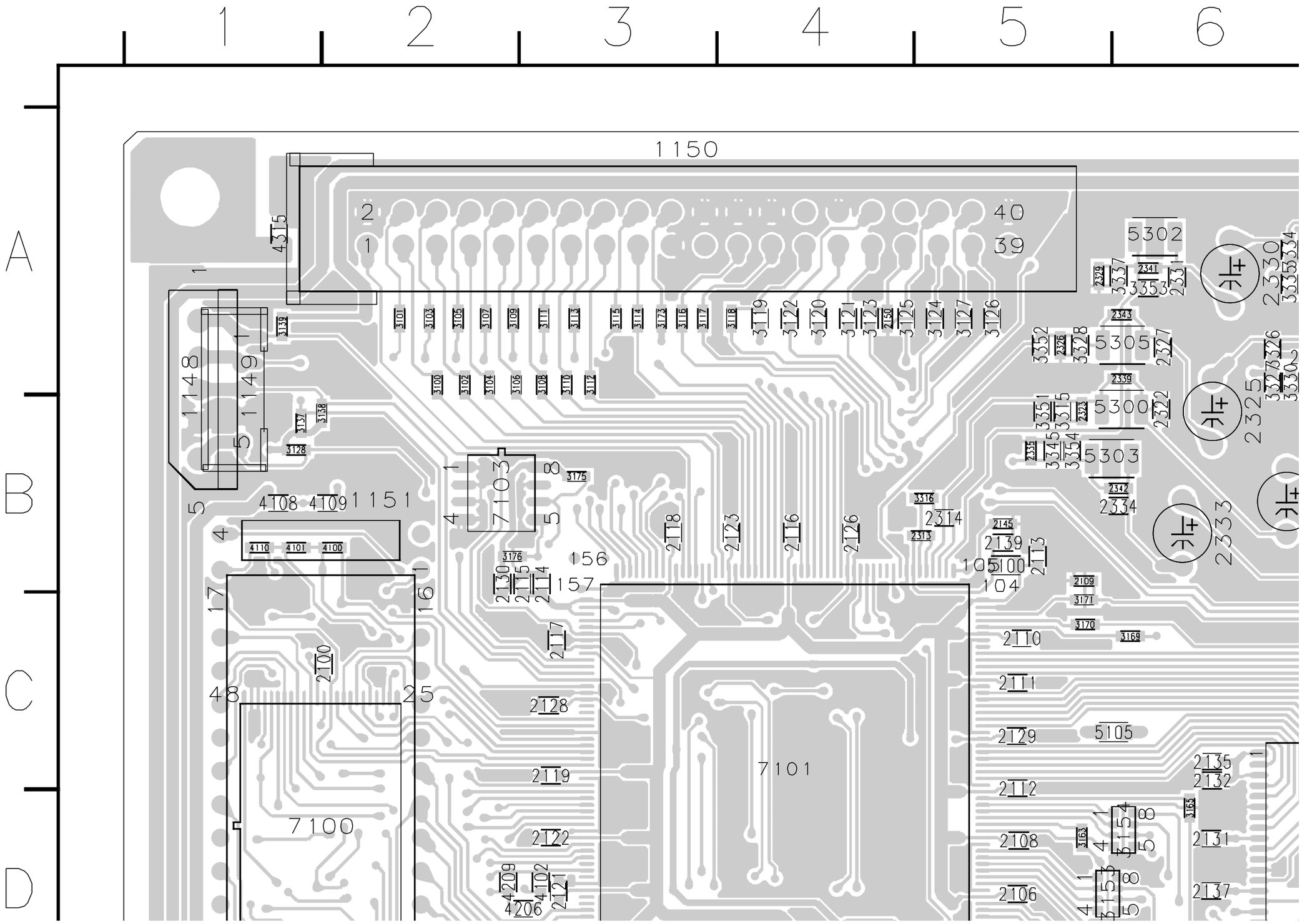
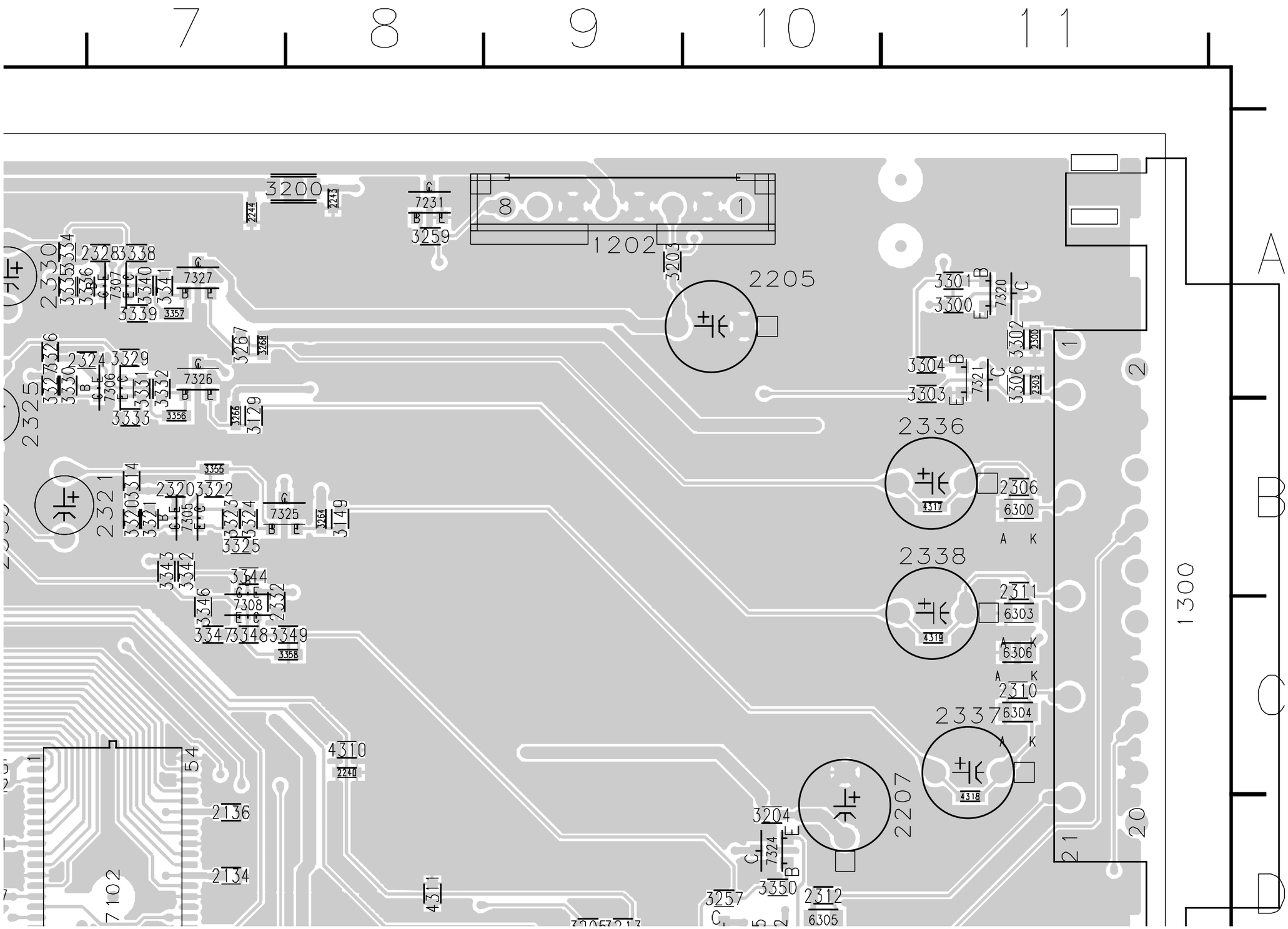
Layout MPEG Board 6018 (Top Side Part 1)



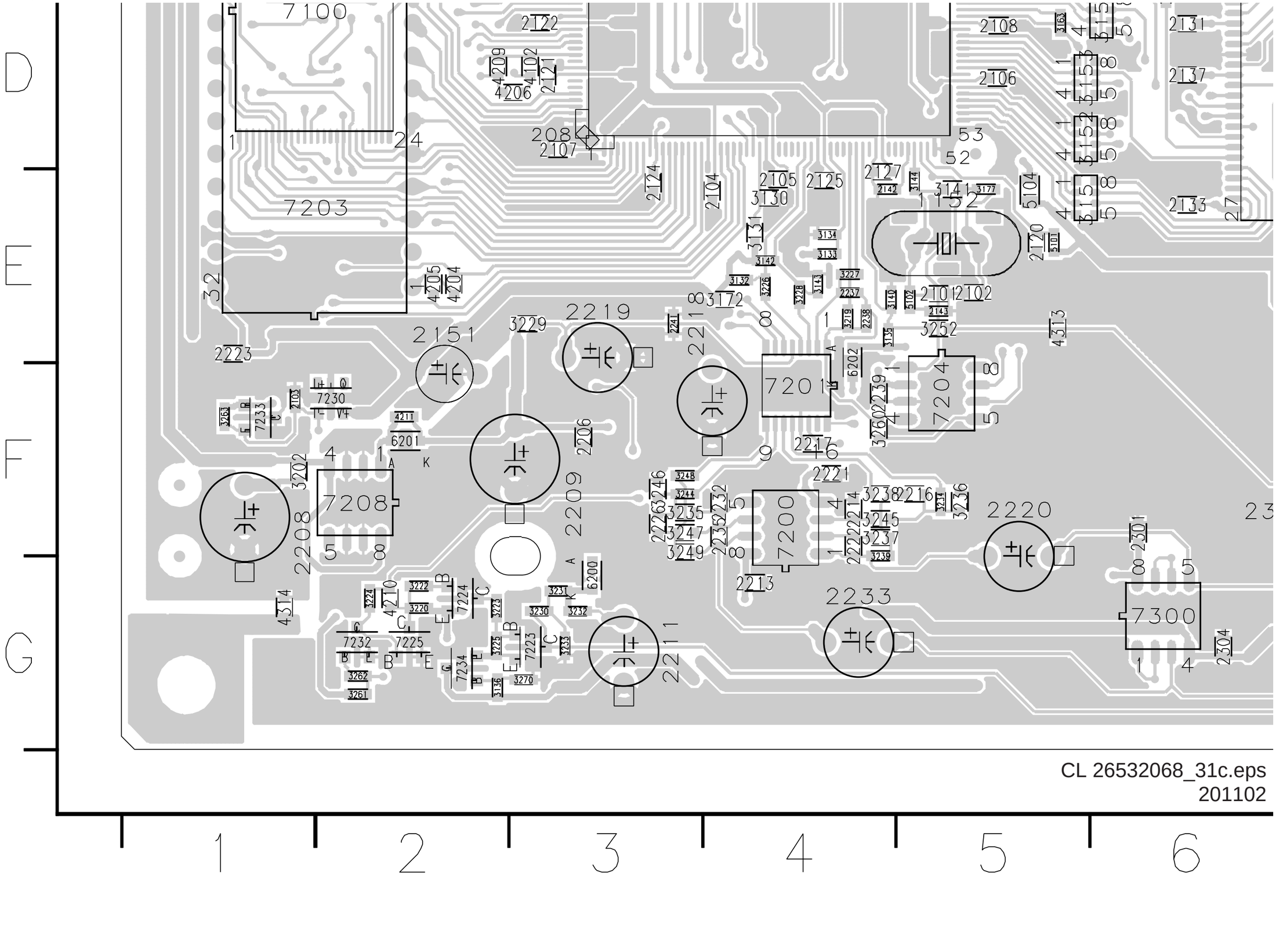
CL 26532068_31a.eps
201102

Layout MPEG Board 6018 (Top Side Part 2)

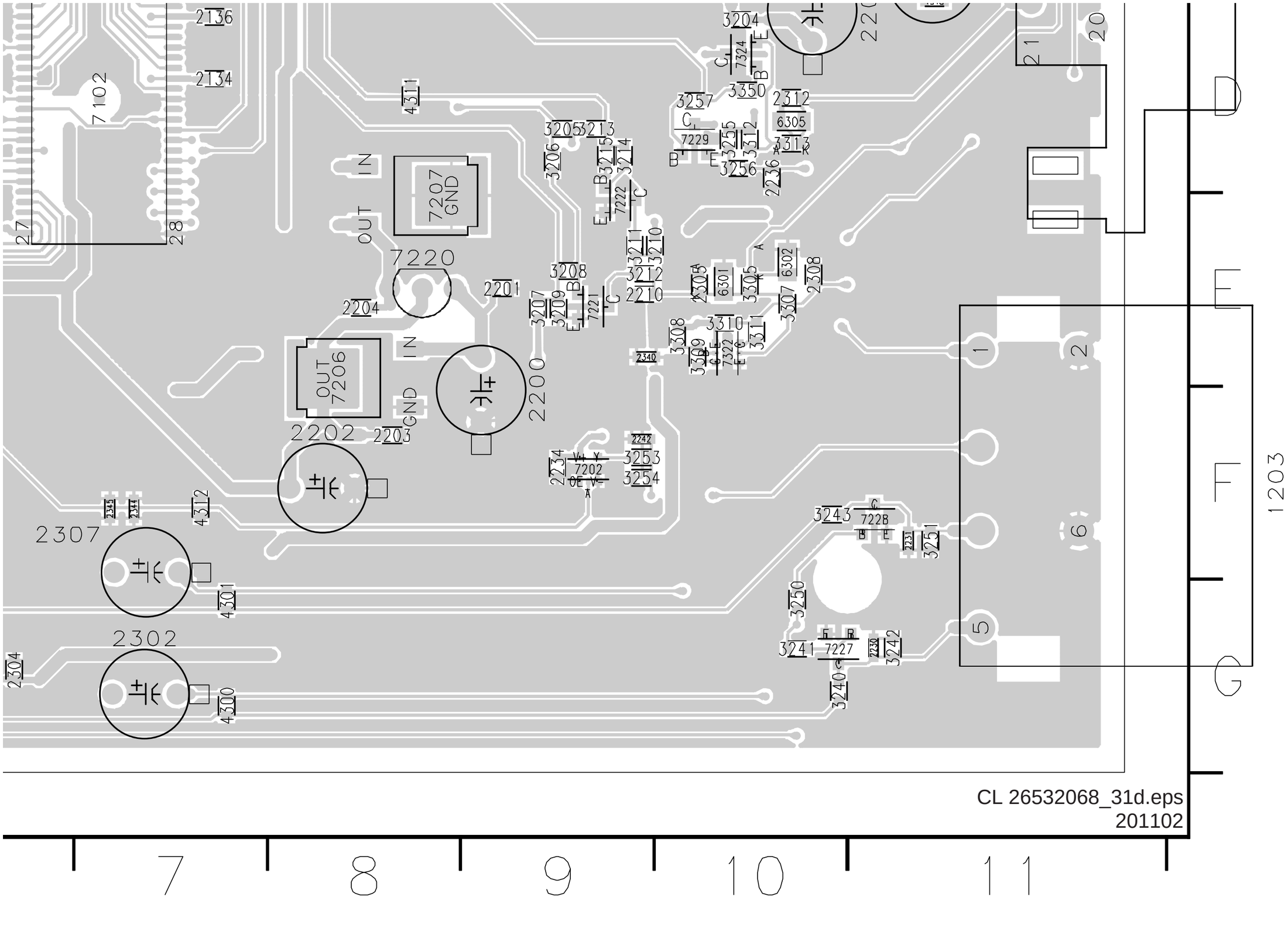


CL 26532068_31b.eps
201102

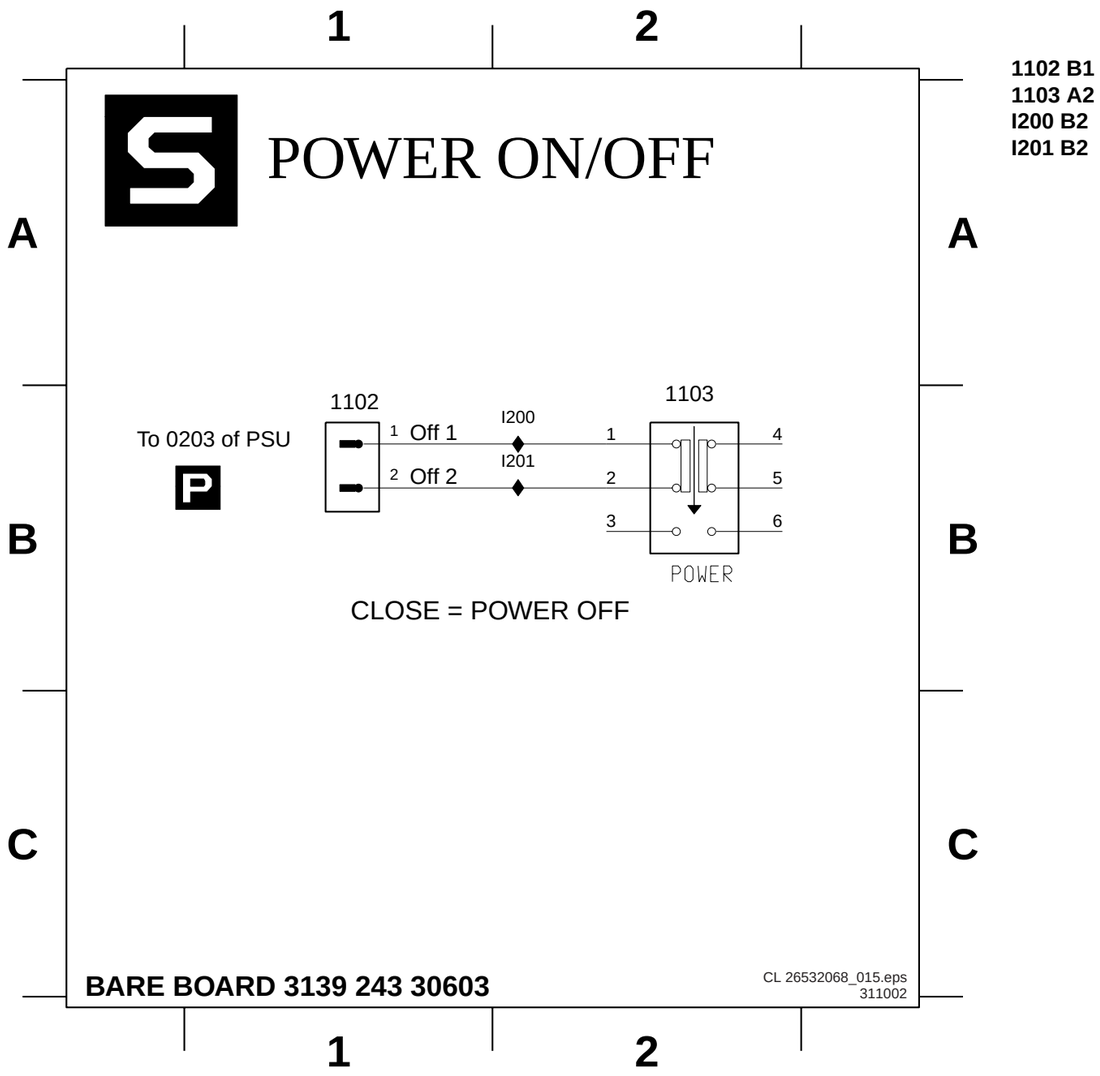
Layout MPEG Board 6018 (Top Side Part 3)



Layout MPEG Board 6018 (Top Side Part 4)

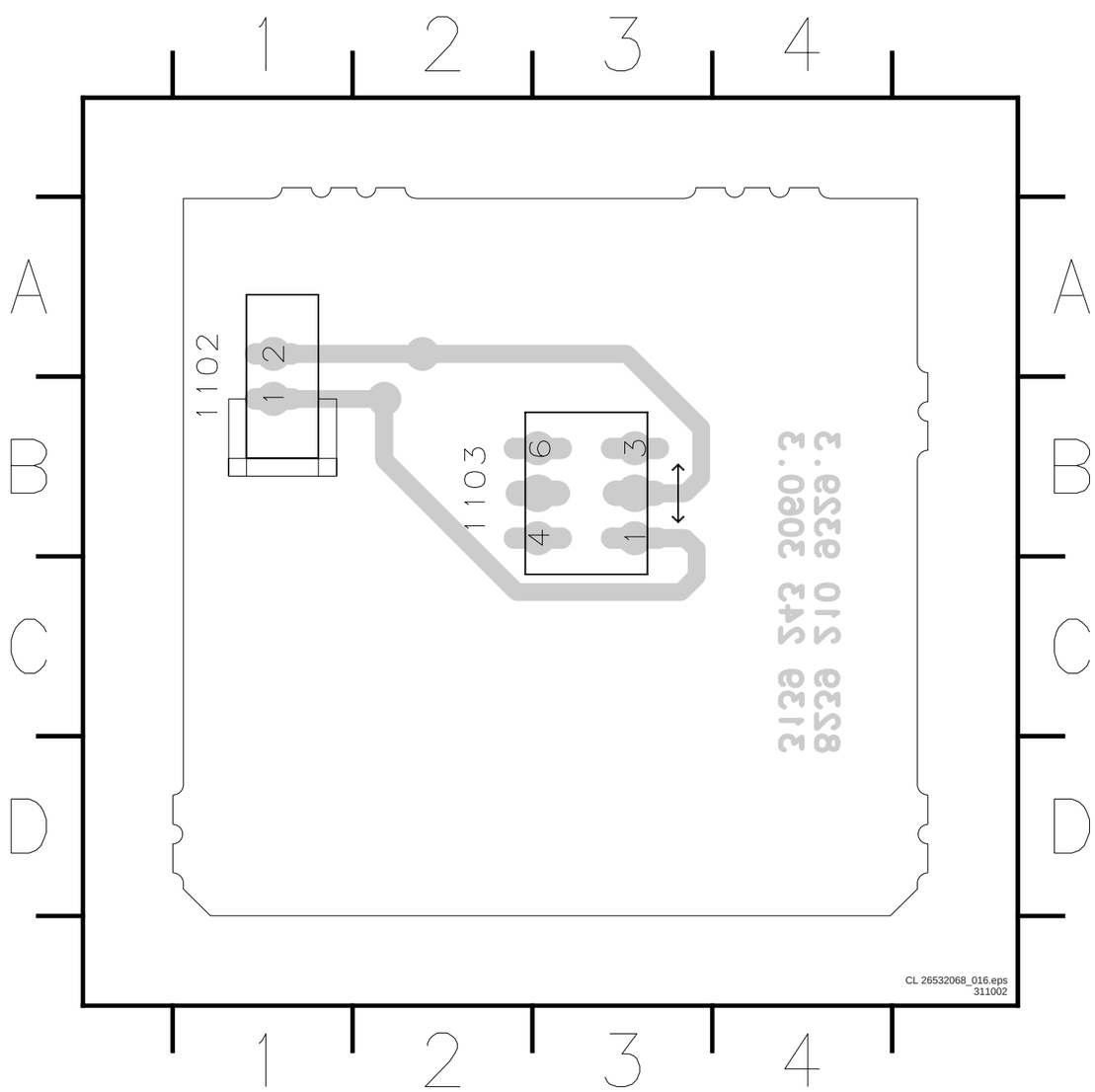


Power On/Off Panel



Layout Power On/Off Panel

1102 B1 1103 B2



8. Alignments

Not applicable.

9. Circuit Descriptions, List of Abbreviations, and IC Data

9.1 Circuit Descriptions

Not applicable.

9.2 List of abbreviations

Not applicable.

9.3 IC Data

9.3.1 uPD16312

BLOCK DIAGRAM

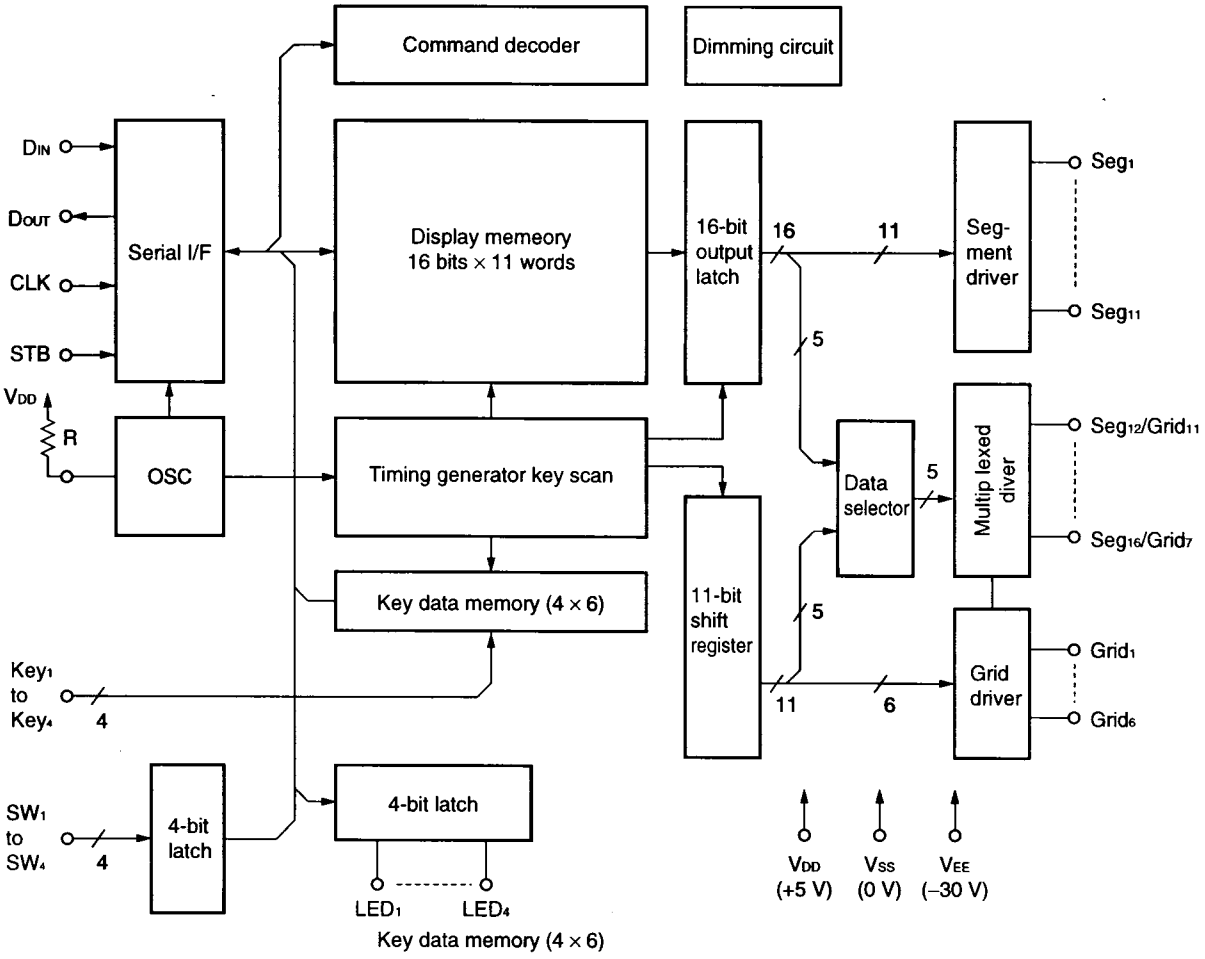
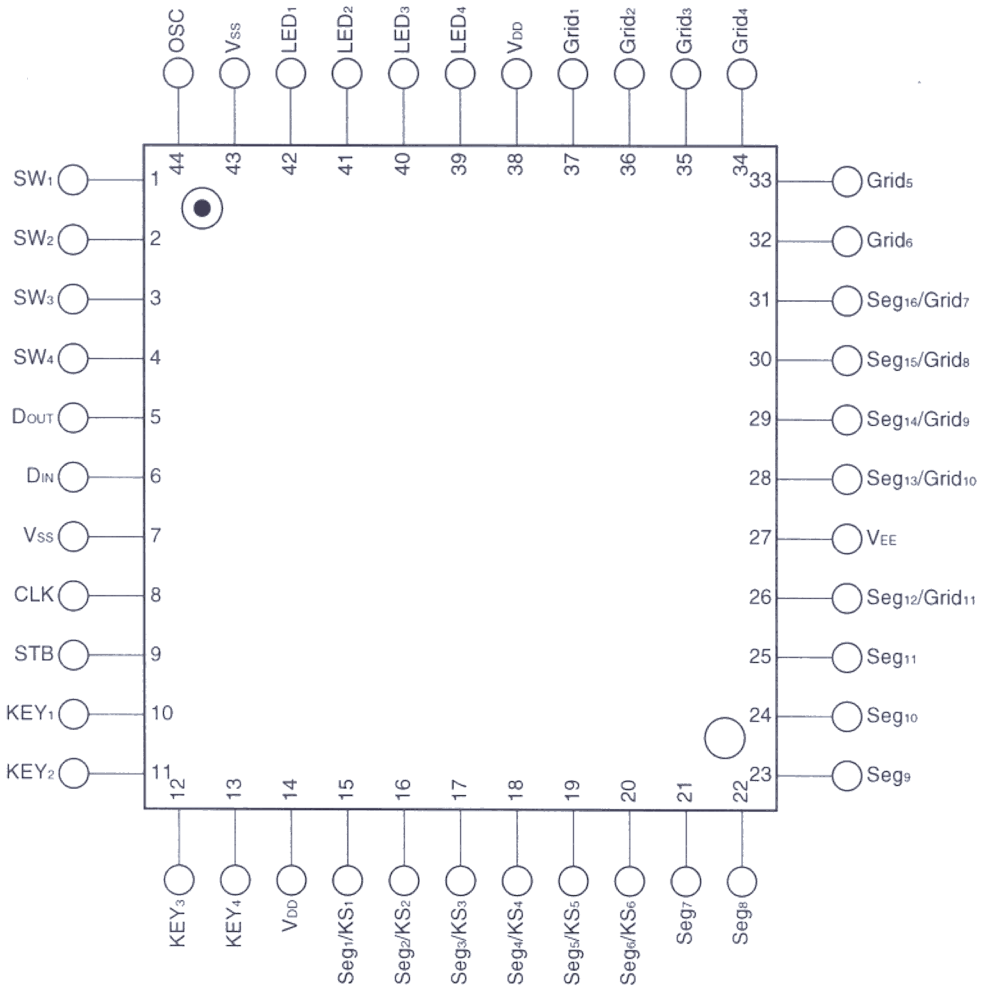


Figure 9-1 Block Diagram uPD16312

PIN CONFIGURATION (Top View)



Use all power pins.

Figure 9-2 Pinning uPD16312

Pin Function

Symbol	Pin Name	Pin No	Description
D_{IN}	Data input	6	Input serial data at rising edge of shift clock, starting from the low order bit.
D_{OUT}	Data output	5	Output serial data at the falling edge of the shift clock, starting from low order bit. This is N-ch open-drain output pin.
STB	Strobe	9	Initializes serial interface at the rising or falling edge of the μPD16312. It then waits for reception of a command. Data input after STB has fallen is processed as a command. While command data is processed, current processing is stopped, and the serial interface is initialized. While STB is high, CLK is ignored.
CLK	Clock input	8	Reads serial data at the rising edge, and outputs data at the falling edge.
OSC	Oscillator pin	44	Connect resistor to this pin to determine the oscillation frequency to this pin.
Seg_1/KS_1 to Seg_6/KS_6	High-voltage output	15 to 20	Segment output pins (Dual function as key source)
Seg_7 to Seg_{11}	High-voltage output (segment)	21 to 25	Segment output pins
$Grid_1$ to $Grid_6$	High-voltage output (grid)	37 to 32	Grid output pins
$Seg_{12}/Grid_{11}$ to $Seg_{16}/Grid_7$	High-voltage output (segment/grid)	26, 28 to 31	These pins are selectable for segment or grid driving.
LED_1 to LED_4	LED output	42 to 39	CMOS output. +20 mA max.
KEY_1 to KEY_4	Key data input	10 to 13	Data input to these pins is latched at the end of the display cycle.
SW_1 to SW_4	Switch input	1 to 4	These pins constitute a 4-bit general-purpose input port.
V_{DD}	Logic power	14, 38	5 V ± 10 %
V_{SS}	Logic ground	7, 43	Connect this pin to system GND.
V_{EE}	Pull-down level	27	V_{DD} – 35 V max.

Figure 9-3 Pin Description uPD16312

10. Spare Parts List

Mechanical DVD634 /001

Various

0001	3139 247 56151	FRONT COMPLETE DVD634
0145	9305 026 61311	VAE6013/11/V042 (PHOS) B
0250	3139 247 56041	PLATE BACK DVD624 PNT PRT
0300	3139 247 55511	COVER TOP DVD743 PPT
0361⚠	4822 321 11196	MAINS CORD 20/21"
0365	3103 308 92610	CABLE AUDIO 2X2 RCA MALE 1.5
0373	2422 076 00445	CORD SCART 1M1 M 20P
0375	3139 246 11941	IFU DVD624/001
0390	3141 017 90220	REMOTE CONTROL DVD-Q30/751
1001	3139 248 82071	PCBAS FRONT DVD624
1002	3139 248 82121	PCBAS MPEG DVD624
1005⚠	3122 427 23271	PSU DVD DRAGON EURO B

Mechanical DVD634 /021

Various

0001	3139 247 56151	FRONT COMPLETE DVD634
0145	9305 026 61311	VAE6013/11/V042 (PHOS) B
0250	3139 247 56041	PLATE BACK DVD624 PNT PRT
0300	3139 247 55511	COVER TOP DVD743 PPT
0361⚠	4822 321 11196	MAINS CORD 20/21"
0365	3103 308 92610	CABLE AUDIO 2X2 RCA MALE 1.5
0373	2422 076 00445	CORD SCART 1M1 M 20P
0375	3139 246 11931	IFU DVD624/021
0390	3141 017 90220	REMOTE CONTROL DVD-Q30/751
1001	3139 248 82071	PCBAS FRONT DVD624
1002	3139 248 82121	PCBAS MPEG DVD624
1005⚠	3122 427 23271	PSU DVD DRAGON EURO B

Mechanical DVD634 /051

Various

0001	3139 247 56151	FRONT COMPLETE DVD634
0145	9305 026 61311	VAE6013/11/V042 (PHOS) B
0250	3139 247 56041	PLATE BACK DVD624 PNT PRT
0300	3139 247 55511	COVER TOP DVD743 PPT
0361⚠	4822 321 11207	MAINS CORD & FUSE 14" GB /05
0365	3103 308 92610	CABLE AUDIO 2X2 RCA MALE 1.5
0373	2422 076 00445	CORD SCART 1M1 M 20P
0375	3139 246 11921	IFU DVD624/051
0390	3141 017 90220	REMOTE CONTROL DVD-Q30/751
1001	3139 248 82071	PCBAS FRONT DVD624
1002	3139 248 82121	PCBAS MPEG DVD624
1005⚠	3122 427 23271	PSU DVD DRAGON EURO B

Front PWB

Various

0002	3141 014 24852	FTD HOLDER
1100	3139 240 50341	FTD HNV-07SS44T DVD624
1101	4822 265 30735	5 PINS
1102	2422 025 04849	CON BMT 2P
1103	2422 128 03063	SWI PUSH 2P 2POS 30V V 18MM B
1104	4822 265 30735	5 PINS
1105	4822 276 13775	SWITCH
1106	4822 276 13775	SWITCH
1107	4822 276 13775	SWITCH
1108	4822 276 13775	SWITCH
1109	4822 276 13775	SWITCH
1110	4822 276 13775	SWITCH

⊣⊢

2100	4822 124 81286	47µF 20% 16V
2101	2238 586 59812	0603 50V 100NP80M
2102	2238 586 59812	0603 50V 100NP80M
2104	2238 586 59812	0603 50V 100NP80M
2104	3198 024 44730	47nF 50V 0603
2105	2238 586 59812	0603 50V 100NP80M
2106	4822 124 81286	47µF 20% 16V
2107	4822 126 14238	0603 50V 2N2 COL R

⊣WW⊢

3100	4822 117 11152	4Ω7 5%
3101	4822 051 30109	10Ω 5% 0.062W
3102	4822 051 30563	56k 5% 0.062W
3103	4822 051 30103	10k 5% 0.062W
3104	4822 051 30103	10k 5% 0.062W
3105	4822 051 30103	10k 5% 0.062W
3106	4822 051 30101	100Ω 5% 0.062W
3107	4822 051 30331	330Ω 5% 0.062W
3108	4822 051 30101	100Ω 5% 0.062W
3109	4822 051 30101	100Ω 5% 0.062W
3110	4822 051 30008	0Ω jumper
3111	4822 117 12925	47k 1% 0.063W 0603
3112	4822 051 30103	10k 5% 0.062W
3113	4822 051 30479	47Ω 5% 0.062W
3114	4822 051 30472	4k7 5% 0.062W
3115	4822 051 30472	4k7 5% 0.062W
3116	4822 051 30472	4k7 5% 0.062W

⊣▶⊢

6100	9340 548 42115	PDZ2.4B
6101	9340 548 68115	DIO REG SM PDZ24B (PHSE) R
6102	4822 130 11397	BAS316
6103	4822 130 11397	BAS316
6104	3198 020 55680	DIO REG SM BZX384-C5V6 COL R
6105	3198 020 55680	DIO REG SM BZX384-C5V6 COL R
6107	3198 020 55680	DIO REG SM BZX384-C5V6 COL R
6108	3198 020 55680	DIO REG SM BZX384-C5V6 COL R
6109	3198 020 55680	DIO REG SM BZX384-C5V6 COL R
6110	3198 020 55680	DIO REG SM BZX384-C5V6 COL R

7100	9322 186 03671	IC SM UPD16312GB-3B4 (NEC0) Y
7101	9322 155 82667	IR RECEIVER TSOP2236

MPEG ES4428 PWB

Various

1149	4822 267 10734	B5B-EH-A
1150	2422 025 17682	CON BM V 40P M 2.54 440094 B
1153	4822 242 81246	27MHz 20P HC49/UT
1202	4822 267 10574	CON BM V 8P 2.50
1203	2422 026 05353	SOC CINCH H 4P F WHYERDBK Y
1300	2422 025 12352	

⊣⊢

2100	4822 126 13879	220nF 20% 16V
2104	2238 586 59812	
2105	2238 586 59812	
2106	2238 586 59812	
2107	2238 586 59812	
2108	2238 586 59812	
2109	4822 122 33752	15pF 5% 50V
2110	2238 586 59812	
2111	2238 586 59812	
2112	2238 586 59812	
2113	2238 586 59812	
2114	2238 586 59812	
2115	2238 586 59812	
2116	2238 586 59812	
2117	2238 586 59812	
2118	2238 586 59812	
2119	2238 586 59812	
2120	4822 126 13879	220nF 20% 16V
2121	2238 586 59812	
2122	2238 586 59812	
2123	2238 586 59812	
2124	2238 586 59812	
2125	2238 586 59812	
2126	2238 586 59812	
2127	2238 586 59812	
2128	2238 586 59812	
2129	2238 586 59812	
2131	2238 586 59812	
2132	2238 586 59812	
2133	2238 586 59812	
2134	2238 586 59812	
2135	2238 586 59812	
2136	2238 586 59812	
2137	2238 586 59812	
2138	2238 586 59812	
2139	2238 586 59812	
2140	4822 122 33761	22pF 5% 50V
2141	4822 122 33761	22pF 5% 50V
2142	4822 122 33753	150pF 5% 50V
2144	3198 016 31020	
2145	4822 122 33752	15pF 5% 50V
2146	4822 122 33752	15pF 5% 50V
2147	4822 122 33752	15pF 5% 50V
2148	4822 122 33752	15pF 5% 50V
2149	4822 122 33752	15pF 5% 50V
2200	4822 124 40196	220µF 20% 16V
2201	4822 126 13879	220nF 20% 16V
2202	4822 124 23052	100µF 20% 16V
2203	4822 126 13879	220nF 20% 16V
2204	4822 126 13879	220nF 20% 16V
2205	4822 124 23052	100µF 20% 16V
2206	4822 126 13879	220nF 20% 16V
2207	4822 124 40196	220µF 20% 16V
2208	4822 124 40196	220µF 20% 16V
2209	4822 124 40196	220µF 20% 16V
2210	4822 126 13879	220nF 20% 16V
2211	4822 124 80231	47µF 20% 16V
2213	2238 586 59812	
2214	4822 126 13881	470pF 5% 50V
2216	5322 126 11579	3.3nF 10% 63V
2217	2238 586 59812	
2218	4822 124 11947	10µF 20% 16V
2219	4822 124 80231	47µF 20% 16V
2220	4822 124 23052	100µF 20% 16V
2221	2238 586 59812	
2222	4822 126 13881	470pF 5% 50V
2223	4822 126 13879	220nF 20% 16V
2226	5322 126 11579	3.3nF 10% 63V
2230	4822 126 13909	680pF 10% 50V
2231	4822 126 13909	680pF 10% 50V
2232	4822 126 13881	470pF 5% 50V
2233	4822 124 23052	100µF 20% 16V
2234	2238 586 59812	
2235	4822 126 13881	470pF 5% 50V
2236	4822 126 13883	220pF 5% 50V
2237	4822 122 33752	15pF 5% 50V
2238	4822 122 33752	15pF 5% 50V
2240	2238 586 59812	
2241	2238 586 59812	
2300	4822 126 13909	680pF 10% 50V
2303	4822 126 13909	680pF 10% 50V
2305	4822 126 14494	22nF 10% 25V 0603
2306	4822 126 13883	220pF 5% 50V
2308	2238 586 59812	
2310	4822 126 13883	220pF 5% 50V
2311	4822 126 13883	220pF 5% 50V
2312	4822 126 13883	220pF 5% 50V
2315	2238 586 59812	
2316	2238 586 59812	
2317	2238 586 59812	
2319	2238 586 59812	
2320	2238 586 59812	
2321	4822 124 11947	10µF 20% 16V
2322	2020 552 94427	
2323	2020 552 94427	
2324	2238 586 59812	
2325	4822 124 11947	10µF 20% 16V
2326	2020 552 94427	
2327	2020 552 94427	
2328	2238 586 59812	
2329	2020 552 94427	

2330	4822 124 11947	10µF 20% 16V
2331	2020 552 94427	
2332	2238 586 59812	
2333	4822 124 11947	10µF 20% 16V
2334	2020 552 94427	
2335	2020 552 94427	
2339	4822 124 11947	10µF 20% 16V
2340	2238 586 59812	

3100	4822 051 30479	47Ω 5% 0.062W
3101	4822 051 30479	47Ω 5% 0.062W
3102	4822 051 30479	47Ω 5% 0.062W
3103	4822 051 30479	47Ω 5% 0.062W
3104	4822 051 30479	47Ω 5% 0.062W
3105	4822 051 30479	47Ω 5% 0.062W
3106	4822 051 30479	47Ω 5% 0.062W
3107	4822 051 30479	47Ω 5% 0.062W
3108	4822 051 30479	47Ω 5% 0.062W
3109	4822 051 30479	47Ω 5% 0.062W
3110	4822 051 30479	47Ω 5% 0.062W
3111	4822 051 30479	47Ω 5% 0.062W
3112	4822 051 30479	47Ω 5% 0.062W
3113	4822 051 30479	47Ω 5% 0.062W
3114	4822 051 30479	47Ω 5% 0.062W
3115	4822 051 30479	47Ω 5% 0.062W
3116	4822 051 30479	47Ω 5% 0.062W
3117	4822 051 30479	47Ω 5% 0.062W
3118	4822 051 30479	47Ω 5% 0.062W
3119	4822 051 30472	4k7 5% 0.062W
3120	4822 051 30472	4k7 5% 0.062W
3121	4822 051 30479	47Ω 5% 0.062W
3122	4822 051 30479	47Ω 5% 0.062W
3123	4822 051 30479	47Ω 5% 0.062W
3124	4822 051 30479	47Ω 5% 0.062W
3125	4822 051 30479	47Ω 5% 0.062W
3126	4822 051 30479	47Ω 5% 0.062W
3127	4822 051 30479	47Ω 5% 0.062W
3128	4822 051 30472	4k7 5% 0.062W
3131	4822 051 30472	4k7 5% 0.062W
3132	4822 051 30472	4k7 5% 0.062W
3133	4822 051 30472	4k7 5% 0.062W
3136	4822 051 30472	4k7 5% 0.062W
3137	4822 051 30472	4k7 5% 0.062W
3138	4822 051 30472	4k7 5% 0.062W
3139	4822 051 30472	4k7 5% 0.062W
3140	4822 051 30472	4k7 5% 0.062W
3142	4822 051 30472	4k7 5% 0.062W
3144	4822 051 30339	33Ω 5% 0.062W
3145	4822 051 30339	33Ω 5% 0.062W
3146	4822 051 30339	33Ω 5% 0.062W
3147	4822 051 30339	33Ω 5% 0.062W
3148	4822 051 30339	33Ω 5% 0.062W
3149	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM
3150	4822 051 30105	1M 5% 0.062W
3151	4822 117 12662	10Ω X4 5%
3152	4822 117 12662	10Ω X4 5%
3153	4822 117 12662	10Ω X4 5%
3154	4822 117 13576	NETW 4 X 33Ω 5% 1206
3163	4822 051 30339	33Ω 5% 0.062W
3165	4822 051 30339	33Ω 5% 0.062W
3169	4822 051 30339	33Ω 5% 0.062W
3170	4822 051 30339	33Ω 5% 0.062W
3171	4822 051 30339	33Ω 5% 0.062W
3172	4822 051 30472	4k7 5% 0.062W
3200	4822 051 20008	0Ω jumper . (0805)
3202	4822 051 30151	150Ω 5% 0.062W
3203	4822 051 30008	0Ω jumper
3204	4822 117 12139	22Ω 5% 0.062W
3207	4822 051 30103	10k 5% 0.062W
3208	4822 051 30103	10k 5% 0.062W
3209	4822 051 30183	18k 5% 0.062W
3210	4822 051 30471	470Ω 5% 0.062W
3211	4822 051 30471	470Ω 5% 0.062W
3212	4822 051 30221	220Ω 5% 0.062W
3213	4822 051 30103	10k 5% 0.062W
3214	4822 051 30103	10k 5% 0.062W
3215	4822 051 30183	18k 5% 0.062W
3219	4822 051 30101	100Ω 5% 0.062W
3220	4822 051 30562	5k6 5% 0.063W 0603 RC21 RST SM
3222	4822 051 30103	10k 5% 0.062W
3223	4822 051 30333	33k 5% 0.062W
3224	4822 051 30562	5k6 5% 0.063W 0603 RC21 RST SM
3225	4822 051 30562	5k6 5% 0.063W 0603 RC21 RST SM
3226	4822 051 30479	47Ω 5% 0.062W
3227	4822 051 30479	47Ω 5% 0.062W
3228	4822 051 30479	47Ω 5% 0.062W
3229	4822 051 30472	4k7 5% 0.062W
3230	4822 051 30471	470Ω 5% 0.062W
3231	4822 051 30222	2k2 5% 0.062W
3232	4822 051 30221	220Ω 5% 0.062W
3233	4822 051 30684	680k 5% 0.062W
3234	5322 117 13026	4k7 1% 0.063W 0603 RC22H
3235	2322 704 62001	
3236	2322 704 65102	
3237	2322 704 62001	
3238	5322 117 13026	4k7 1% 0.063W 0603 RC22H
3239	2322 704 65102	
3240	4822 051 30471	470Ω 5% 0.062W
3241	4822 051 30272	2k7 5% 0.062W
3242	4822 051 30103	10k 5% 0.062W
3243	4822 051 30471	470Ω 5% 0.062W
3244	5322 117 13026	4k7 1% 0.063W 0603 RC22H
3245	2322 704 62001	
3246	2322 704 65102	
3247	2322 704 62001	
3248	5322 117 13026	4k7 1% 0.063W 0603 RC22H
3249	2322 704 65102	
3250	4822 051 30272	2k7 5% 0.062W
3251	4822 051 30103	10k 5% 0.062W
3252	4822 051 30102	1k 5% 0.062W
3253	4822 051 30331	330Ω 5% 0.062W
3254	4822 051 30101	100Ω 5% 0.062W
3255	4822 051 30222	2k2 5% 0.062W
3256	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM
3257	4822 051 30101	100Ω 5% 0.062W
3259	4822 051 30103	10k 5% 0.062W
3261	4822 051 30472	4k7 5% 0.062W
3262	4822 051 30472	4k7 5% 0.062W
3263	4822 051 30472	4k7 5% 0.062W
3264	4822 051 30222	2k2 5% 0.062W
3265	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM
3266	4822 051 30222	2k2 5% 0.062W
3267	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM
3268	4822 051 30222	2k2 5% 0.062W
3300	4822 051 30471	470Ω 5% 0.062W
3301	4822 051 30272	2k7 5% 0.062W
3302	4822 051 30103	10k 5% 0.062W
3303	4822 051 30471	470Ω 5% 0.062W
3304	4822 051 30272	2k7 5% 0.062W
3305	4822 051 30221	220Ω 5% 0.062W
3306	4822 051 30103	10k 5% 0.062W
3307	4822 117 12925	47k 1% 0.063W 0603
3308	4822 051 30223	22k 5% 0.062W
3309	4822 051 30102	1k 5% 0.062W
3311	4822 051 30759	75Ω 5% 0.062W
3312	4822 051 30222	2k2 5% 0.062W
3313	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM
3314	4822 051 30683	68k 5% 0.062W
3315	5322 117 13058	150Ω 1% 0.063W 0603 RC22H
3317	4822 051 30392	3k9 5% 0.063W 0603
3318	4822 051 30102	1k 5% 0.062W
3319	4822 051 30102	1k 5% 0.062W
3320	4822 051 30471	470Ω 5% 0.062W
3321	4822 051 30101	100Ω 5% 0.062W
3322	4822 117 12925	47k 1% 0.063W 0603
3323	4822 051 30221	220Ω 5% 0.062W
3324	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM
3325	4822 051 30221	220Ω 5% 0.062W
3326	4822 051 30683	68k 5% 0.062W
3327	4822 051 30471	470Ω 5% 0.062W
3328	5322 117 13058	150Ω 1% 0.063W 0603 RC22H
3329	4822 117 12925	47k 1% 0.063W 0603
3330	4822 051 30101	100Ω 5% 0.062W
3331	4822 051 30221	220Ω 5% 0.062W
3332	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM
3333	4822 051 30221	220Ω 5% 0.062W
3334	4822 051 30683	68k 5% 0.062W
3335	4822 051 30471	470Ω 5% 0.062W
3336	4822 051 30101	100Ω 5% 0.062W
3337	5322 117 13058	150Ω 1% 0.063W 0603 RC22H
3338	4822 117 12925	47k 1% 0.063W 0603
3339	4822 051 30221	220Ω 5% 0.062W
3340	4822 051 30221	220Ω 5% 0.062W
3341	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM
3342	4822 051 30471	470Ω 5% 0.062W
3343	4822 051 30683	68k 5% 0.062W
3344	4822 051 30101	100Ω 5% 0.062W
3345	5322 117 13058	150Ω 1% 0.063W 0603 RC22H
3346	4822 117 12925	47k 1% 0.063W 0603
3347	4822 051 30221	220Ω 5% 0.062W
3348	4822 051 30221	220Ω 5% 0.062W
3349	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM
3350	4822 051 30101	100Ω 5% 0.062W

5100	4822 157 10586	2.2µH 10% 0805
5101	3198 018 52280	FXDIND SM 0603 2U2 PM10 COL R
5103	3198 018 53380	FXDIND SM 0603 3U3 PM10 COL R
5104	4822 157 10586	2.2µH 10% 0805
5105	4822 051 20008	0R00 JUMP. (0805)
5300	4822 157 70299	2.2µH (NL322522T-2R2J)
5301	3198 018 52280	FXDIND SM 0603 2U2 PM10 COL R
5302	4822 157 70299	2.2µH (NL322522T-2R2J)
5303	4822 157 70299	2.2µH (NL322522T-2R2J)
5305	4822 157 70299	2.2µH (NL322522T-2R2J)

6200	4822 130 11397	BAS316
6202	4822 130 11397	BAS316
6300	4822 130 11522	UDZ15B
6301	4822 130 11522	UDZ15B
6302	4822 130 11522	UDZ15B
6303	4822 130 11522	UDZ15B
6304	4822 130 11522	UDZ15B
6305	4822 130 11522	UDZ15B

7101	3141 018 51080	
7102	9322 166 67668	
7104	5322 209 11517	PC74HCU04T
7200	4822 209 30095	LM833D
7201	9322 177 09685	
7202	9352 456 80115	74HCT1G125GW
7206	4822 209 17398	LD1117DT33
7208	4822 209 33411	MC78L05ACD
7220	4822 130 40855	BC337
7221	5322 130 60159	BC846B
7222	5322 130 60159	BC846B
7223	5322 130 60159	BC846B
7224	4822 130 60373	BC856B
7225	5322 130 60159	BC846B
7227	4822 130 42804	BC817-25
7228	4822 130 42804	BC817-25
7229	5322 130 60159	BC846B
7230	3141 018 51120	
7231	4822 130 42804	BC817-25
7232	5322 130 60159	BC846B
7301	3141 018 51100	
7305	9340 425 30115	
7306	9340 425 30115	
7307	9340 425 30115	
7308	9340 425 30115	
7320	4822 130 42804	BC817-25
7321	4822 130 42804	BC817-25
7322	9340 425 30115	
7324	5322 130 60159	BC846B
7325	5322 130 60159	BC846B
7326	5322 130 60159	BC846B
7327	5322 130 60159	BC846B

MPEG ES 6018 PWB

Various

1149	4822 267 10734	B5B-EH-A
1150	2422 025 17682	CON BM V 40P M 2.54 440094 B
1152	4822 242 81246	27MHz 20P HC49/UT
1202	4822 267 10574	CON BM V 8P 2.50
1203	2422 026 05353	SOC CINCH H 4P F WHYERDBK Y
1300	2422 025 12352	CON BM EURO H 21P F BK GRND-L

2100	4822 126 13879	220nF 20% 16V
2101	4822 122 33761	22pF 5% 50V
2102	4822 122 33761	22pF 5% 50V
2104	2238 586 59812	0603 50V 100NP80M
2105	2238 586 59812	0603 50V 100NP80M
2106	2238 586 59812	0603 50V 100NP80M
2107	2238 586 59812	0603 50V 100NP80M

2108	2238 586 59812	0603 50V 100NP80M
2109	4822 122 33752	15pF 5% 50V
2110	2238 586 59812	0603 50V 100NP80M
2111	2238 586 59812	0603 50V 100NP80M
2112	2238 586 59812	0603 50V 100NP80M
2113	2238 586 59812	0603 50V 100NP80M
2114	2238 586 59812	0603 50V 100NP80M
2115	2238 586 59812	0603 50V 100NP80M
2116	2238 586 59812	0603 50V 100NP80M
2117	2238 586 59812	0603 50V 100NP80M
2118	2238 586 59812	0603 50V 100NP80M
2119	2238 586 59812	0603 50V 100NP80M
2120	4822 126 13879	220nF 20% 16V
2121	2238 586 59812	0603 50V 100NP80M
2122	2238 586 59812	0603 50V 100NP80M
2123	2238 586 59812	0603 50V 100NP80M
2124	2238 586 59812	0603 50V 100NP80M
2125	2238 586 59812	0603 50V 100NP80M
2126	2238 586 59812	0603 50V 100NP80M
2127	2238 586 59812	0603 50V 100NP80M
2128	2238 586 59812	0603 50V 100NP80M
2129	2238 586 59812	0603 50V 100NP80M
2131	2238 586 59812	0603 50V 100NP80M
2132	2238 586 59812	0603 50V 100NP80M
2133	2238 586 59812	0603 50V 100NP80M
2134	2238 586 59812	0603 50V 100NP80M
2135	2238 586 59812	0603 50V 100NP80M
2136	2238 586 59812	0603 50V 100NP80M
2137	2238 586 59812	0603 50V 100NP80M
2139	2238 586 59812	0603 50V 100NP80M
2143	3198 016 31020	0603 25V 1nF
2200	4822 124 40196	220µF 20% 16V
2201	4822 126 13879	220nF 20% 16V
2202	4822 124 23052	100µF 20% 16V
2203	4822 126 13879	220nF 20% 16V
2204	4822 126 13879	220nF 20% 16V
2205	4822 124 23052	100µF 20% 16V
2206	4822 126 13879	220nF 20% 16V
2207	4822 124 40196	220µF 20% 16V
2208	4822 124 40196	220µF 20% 16V
2209	4822 124 40196	220µF 20% 16V
2210	4822 126 13879	220nF 20% 16V
2211	4822 124 80231	47µF 20% 16V
2213	2238 586 59812	0603 50V 100NP80M
2214	4822 126 13881	470pF 5% 50V
2216	5322 126 11579	3.3nF 10% 63V
2217	2238 586 59812	0603 50V 100NP80M
2218	4822 124 11947	10µF 20% 16V
2219	4822 124 80231	47µF 20% 16V
2220	4822 124 23052	100µF 20% 16V
2221	2238 586 59812	0603 50V 100NP80M
2222	4822 126 13881	470pF 5% 50V
2223	4822 126 13879	220nF 20% 16V
2226	5322 126 11579	3.3nF 10% 63V
2230	4822 126 13909	680pF 10% 50V
2231	4822 126 13909	680pF 10% 50V
2232	4822 126 13881	470pF 5% 50V
2233	4822 124 23052	100µF 20% 16V
2234	2238 586 59812	0603 50V 100NP80M
2235	4822 126 13881	470pF 5% 50V
2236	4822 126 13883	220pF 5% 50V
2237	4822 122 33752	15pF 5% 50V
2238	4822 122 33752	15pF 5% 50V
2239	2238 586 59812	0603 50V 100NP80M
2240	2238 586 59812	0603 50V 100NP80M
2241	2238 586 59812	0603 50V 100NP80M
2300	4822 126 13909	680pF 10% 50V
2301	2238 586 59812	0603 50V 100NP80M
2303	4822 126 13909	680pF 10% 50V
2305	4822 126 14494	22nF 10% 25V 0603
2306	4822 126 13883	220pF 5% 50V
2308	2238 586 59812	0603 50V 100NP80M
2310	4822 126 13883	220pF 5% 50V
2311	4822 126 13883	220pF 5% 50V
2312	4822 126 13883	220pF 5% 50V
2313	2238 586 59812	0603 50V 100NP80M
2314	2238 586 59812	0603 50V 100NP80M
2321	4822 124 11947	10µF 20% 16V
2322	2020 552 94427	0603 50V 100P 5%
2323	4822 126 14315	390pF 5% 50V 0603
2325	4822 124 11947	10µF 20% 16V
2326	4822 126 14315	390pF 5% 50V 0603
2327	2020 552 94427	0603 50V 100P 5%
2329	4822 126 14315	390pF 5% 50V 0603
2330	4822 124 11947	10µF 20% 16V
2331	2020 552 94427	0603 50V 100P 5%
2333	4822 124 11947	10µF 20% 16V
2334	2020 552 94427	0603 50V 100P 5%
2335	4822 126 14315	390pF 5% 50V 0603
2336	4822 124 80791	470µF 16V 20% 105C DXH=8X11.5
2337	4822 124 80791	470µF 16V 20% 105C DXH=8X11.5
2338	4822 124 80791	470µF 16V 20% 105C DXH=8X11.5
2340	2238 586 59812	0603 50V 100NP80M
2344	2238 586 59812	0603 50V 100NP80M
2345	2238 586 59812	0603 50V 100NP80M

–WW–

3100	4822 051 30479	47Ω 5% 0.062W
3101	4822 051 30479	47Ω 5% 0.062W
3102	4822 051 30479	47Ω 5% 0.062W
3103	4822 051 30479	47Ω 5% 0.062W
3104	4822 051 30479	47Ω 5% 0.062W
3105	4822 051 30479	47Ω 5% 0.062W
3106	4822 051 30479	47Ω 5% 0.062W
3107	4822 051 30479	47Ω 5% 0.062W
3108	4822 051 30479	47Ω 5% 0.062W
3109	4822 051 30479	47Ω 5% 0.062W
3110	4822 051 30479	47Ω 5% 0.062W
3111	4822 051 30479	47Ω 5% 0.062W
3112	4822 051 30479	47Ω 5% 0.062W
3113	4822 051 30479	47Ω 5% 0.062W
3114	4822 051 30479	47Ω 5% 0.062W
3115	4822 051 30479	47Ω 5% 0.062W
3116	4822 051 30479	47Ω 5% 0.062W
3117	4822 051 30479	47Ω 5% 0.062W
3118	4822 051 30479	47Ω 5% 0.062W
3119	4822 051 30472	4k7 5% 0.062W
3120	4822 051 30472	4k7 5% 0.062W
3121	4822 051 30479	47Ω 5% 0.062W
3122	4822 051 30479	47Ω 5% 0.062W
3123	4822 051 30479	47Ω 5% 0.062W
3124	4822 051 30479	47Ω 5% 0.062W
3125	4822 051 30479	47Ω 5% 0.062W
3126	4822 051 30479	47Ω 5% 0.062W
3127	4822 051 30479	47Ω 5% 0.062W
3128	4822 051 30333	33k 5% 0.062W
3129	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM
3131	4822 051 30472	4k7 5% 0.062W
3132	4822 051 30472	4k7 5% 0.062W
3133	4822 051 30472	4k7 5% 0.062W
3136	4822 051 30472	4k7 5% 0.062W
3137	4822 051 30472	4k7 5% 0.062W
3138	4822 051 30472	4k7 5% 0.062W
3139	4822 051 30472	4k7 5% 0.062W
3140	4822 051 30472	4k7 5% 0.062W
3141	4822 051 30105	1M 5% 0.062W
3142	4822 051 30472	4k7 5% 0.062W
3144	4822 051 30008	0Ω jumper
3149	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM
3151	4822 117 12662	10Ω X4 5%
3152	4822 117 12662	10Ω X4 5%
3153	4822 117 12662	10Ω X4 5%
3154	4822 117 13576	NETW 4 X 33Ω 5% 1206
3163	4822 051 30339	33Ω 5% 0.062W
3165	4822 051 30339	33Ω 5% 0.062W
3169	4822 051 30339	33Ω 5% 0.062W
3170	4822 051 30339	33Ω 5% 0.062W
3171	4822 051 30339	33Ω 5% 0.062W
3172	4822 051 30472	4k7 5% 0.062W
3175	4822 051 30472	4k7 5% 0.062W
3176	4822 051 30472	4k7 5% 0.062W
3177	4822 051 30221	220Ω 5% 0.062W
3200	4822 051 20008	0Ω jumper . (0805)
3202	4822 117 12139	22Ω 5% 0.062W
3203	4822 051 30008	0Ω jumper
3204	4822 117 12139	22Ω 5% 0.062W
3207	4822 051 30103	10k 5% 0.062W
3208	4822 051 30103	10k 5% 0.062W
3209	4822 051 30183	18k 5% 0.062W
3210	4822 051 30471	470Ω 5% 0.062W
3211	4822 051 30471	470Ω 5% 0.062W
3212	4822 051 30221	220Ω 5% 0.062W
3213	4822 051 30103	10k 5% 0.062W
3214	4822 051 30103	10k 5% 0.062W
3215	4822 051 30183	18k 5% 0.062W
3219	4822 051 30101	100Ω 5% 0.062W
3220	4822 051 30562	5k6 5% 0.063W 0603 RC21 RST SM
3222	4822 051 30103	10k 5% 0.062W
3223	4822 051 30333	33k 5% 0.062W
3224	4822 051 30562	5k6 5% 0.063W 0603 RC21 RST SM
3225	4822 051 30562	5k6 5% 0.063W 0603 RC21 RST SM
3226	4822 051 30479	47Ω 5% 0.062W
3227	4822 051 30479	47Ω 5% 0.062W
3228	4822 051 30479	47Ω 5% 0.062W
3229	4822 051 30472	4k7 5% 0.062W
3230	4822 051 30471	470Ω 5% 0.062W
3231	4822 051 30222	2k2 5% 0.062W
3232	4822 051 30221	220Ω 5% 0.062W
3233	4822 051 30684	680k 5% 0.062W
3234	5322 117 13026	4k7 1% 0.063W 0603 RC22H
3235	2322 704 62001	RST SM 0603 RC22H 200Ω PM1 R
3236	2322 704 65102	RST SM 0603 RC22H 5k1 PM1
3237	2322 704 62001	RST SM 0603 RC22H 200Ω PM1 R
3238	5322 117 13026	4k7 1% 0.063W 0603 RC22H
3239	2322 704 65102	RST SM 0603 RC22H 5k1 PM1
3240	4822 051 30471	470Ω 5% 0.062W
3241	4822 051 30272	2k7 5% 0.062W
3242	4822 051 30103	10k 5% 0.062W
3243	4822 051 30471	470Ω 5% 0.062W
3244	5322 117 13026	4k7 1% 0.063W 0603 RC22H
3245	2322 704 62001	RST SM 0603 RC22H 200Ω PM1 R
3246	2322 704 65102	RST SM 0603 RC22H 5k1 PM1
3247	2322 704 62001	RST SM 0603 RC22H 200Ω PM1 R
3248	5322 117 13026	4k7 1% 0.063W 0603 RC22H
3249	2322 704 65102	RST SM 0603 RC22H 5k1 PM1
3250	4822 051 30272	2k7 5% 0.062W
3251	4822 051 30103	10k 5% 0.062W
3252	4822 051 30102	1k 5% 0.062W
3253	4822 051 30331	330Ω 5% 0.062W
3254	4822 051 30101	100Ω 5% 0.062W
3255	4822 051 30222	2k2 5% 0.062W
3256	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM
3257	4822 051 30101	100Ω 5% 0.062W
3259	4822 051 30103	10k 5% 0.062W
3260	4822 051 30479	47Ω 5% 0.062W
3261	4822 051 30472	4k7 5% 0.062W
3262	4822 051 30472	4k7 5% 0.062W
3263	4822 051 30472	4k7 5% 0.062W
3264	4822 051 30222	2k2 5% 0.062W
3266	4822 051 30222	2k2 5% 0.062W
3267	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM
3268	4822 051 30222	2k2 5% 0.062W
3270	4822 051 30272	2k7 5% 0.062W
3300	4822 051 30471	470Ω 5% 0.062W
3301	4822 051 30272	2k7 5% 0.062W
3302	4822 051 30103	10k 5% 0.062W
3303	4822 051 30471	470Ω 5% 0.062W
3304	4822 051 30272	2k7 5% 0.062W
3305	4822 051 30221	220Ω 5% 0.062W
3306	4822 051 30103	10k 5% 0.062W
3307	4822 117 12925	47k 1% 0.063W 0603
3308	4822 051 30223	22k 5% 0.062W
3309	4822 051 30102	1k 5% 0.062W
3311	4822 051 30759	75Ω 5% 0.062W
3312	4822 051 30222	2k2 5% 0.062W
3313	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM
3314	4822 051 30103	10k 5% 0.062W
3315	4822 117 13501	82Ω 5% 0.62W 0603
3316	4822 051 30271	270Ω 5% 0.062W
3322	4822 051 30103	10k 5% 0.062W
3326	4822 051 30103	10k 5% 0.062W
3328	4822 117 13501	82Ω 5% 0.62W 0603
3329	4822 051 30103	10k 5% 0.062W
3334	4822 051 30103	10k 5% 0.062W
3337	4822 117 13501	82Ω 5% 0.62W 0603
3338	4822 051 30103	10k 5% 0.062W
3343	4822 051 30103	10k 5% 0.062W
3345	4822 117 13501	82Ω 5% 0.62W 0603
3346	4822 051 30103	10k 5% 0.062W
3350	4822 051 30101	100Ω 5% 0.062W
3355	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM
3356	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM
3357	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM
3358	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM

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5100	4822 157 10586	2.2µH 10% 0805
5101	3198 018 52280	FXDIND SM 0603 2U2 PM10 COL R
5102	3198 018 53380	FXDIND SM 0603 3U3 PM10 COL R
5104	4822 157 10586	2.2µH 10% 0805
5105	4822 051 20008	0R00 JUMP. (0805)
5300	4822 157 70299	2.2µH (NL322522T-2R2J)

5302	4822 157 70299	2.2µH (NL322522T-2R2J)
5303	4822 157 70299	2.2µH (NL322522T-2R2J)
5305	4822 157 70299	2.2µH (NL322522T-2R2J)

6200	4822 130 11397	BAS316
6202	4822 130 11397	BAS316
6300	4822 130 11522	UDZ15B
6301	4822 130 11522	UDZ15B
6302	4822 130 11522	UDZ15B
6303	4822 130 11522	UDZ15B
6304	4822 130 11522	UDZ15B
6305	4822 130 11522	UDZ15B
6306	4822 130 83206	BZX79-B5V6

7100	9965 000 15979	M29W400BT/DVD640/634_V322_0909
7101	9322 185 42671	IC SM ES6018F (ESST) Y
7102	9322 166 67668	IC SM MT48LC4M16A2TG-7E(MRN0)R
7200	4822 209 30095	LM833D
7201	9322 177 09685	IC SM AK4382AVT (AKM0) R
7202	9352 456 80115	74HCT1G125GW
7206	4822 209 17398	LD1117DT33
7208	4822 209 33411	MC78L05ACD
7220	4822 130 40855	BC337
7221	5322 130 60159	BC846B
7222	5322 130 60159	BC846B
7223	5322 130 60159	BC846B
7224	4822 130 60373	BC856B
7225	5322 130 60159	BC846B
7227	4822 130 42804	BC817-25
7228	4822 130 42804	BC817-25
7229	5322 130 60159	BC846B
7231	4822 130 42804	BC817-25
7232	5322 130 60159	BC846B
7233	9322 189 96685	IC SM M62720GP (MITJ) R
7234	4822 130 60373	BC856B
7320	4822 130 42804	BC817-25
7321	4822 130 42804	BC817-25
7322	9340 425 30115	TRA SIG SM BC847BPN (PHSE) R
7324	5322 130 60159	BC846B
7325	5322 130 60159	BC846B
7326	5322 130 60159	BC846B
7327	5322 130 60159	BC846B

11. Errata

11.1 Revision List

11.1.1 Manual 3122 785 12251

During production, the ES6018 Mpeg board (3139 248 82364) was introduced from production code VN02 onwards.

- In this service manual the circuit diagrams, print layout, block diagram and the belonging parts list are added.

During production, the print layout of the Front Panel has been changed to solve Electro-Static Discharge (ESD) problem.

- This new print layout is introduced as a running change from wk245 onward. In this service manual the new circuit diagrams,
- print layout and the belonging parts list are added